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DISASTER AND RECOVERY: A HISTORICAL SURVEY

Jack Hirshleifer

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PREPARED FOR:

UNITED STATES AIR FORCE PROJECT RAND

The **RAND** *Corporation*
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Jack Hirshleifer

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PREFACE

This Project RAND Memorandum reports on an investigation of the economic characteristics of several major disasters and recoveries in modern times. It is related to continuing RAND studies of the economic aspects of thermonuclear war, and particularly to studies of economic viability after thermonuclear attack, such as P. G. Clark's RM-1809, Vulnerability and Recuperation of a Regional Economy: A Study of the Impact of a Hypothetical Attack on New England (October 1956), and B. F. Massell and S. Winter's RM-2844-PR, Postattack Damage Assessment: A Conceptual Analysis (October 1961).

The present Memorandum does not address itself directly to current policy issues concerning the measures that could be taken to facilitate recovery from the damage that might be suffered in a thermonuclear war. The purpose of this study is to bring together and present in a convenient form selected background information from secondary sources about the economic aspects of a number of major disasters and recoveries. It is hoped that this study of real disasters and the problems actually encountered in recovery will provide an element of concreteness useful to students of hypothetical disasters.

No historical disaster for which good data are available is comparable in scale to all-out thermonuclear war. For limited nuclear exchanges, however, the scale of damage might be comparable to that suffered in one or more of the disasters studied here. It is recognized that in an unrestricted thermonuclear conflict society might suffer damage not only quantitatively greater than in past disasters but also qualitatively quite different in its consequences. A postattack society might emerge in forms unprecedented or even unimaginable in terms of historical experience, and the economy's capacity for production might be subject to long-term technological limitations such as those caused by widespread radioactive contamination. Nonetheless, even if historical experience does not offer

close analogies, a study of this kind may provide some suggestive insights for those concerned with the economic consequences of thermonuclear war.

SUMMARY

Historical disasters may be divided between geographically localized calamities (bombing attack, volcanic eruption, and so on), usually sudden in their impact, and catastrophes whose effects are generalized over a whole national economy (defeat in war, famine, revolution) and commonly gradual in their onset. The former have been subjected to considerable study elsewhere, and the emphasis of the research has been socio-psychological; the latter have hardly been studied at all. Therefore, after a review of literature on localized disasters, a study is provided of four generalized disasters: Russia under war communism after World War I, the American Confederacy, Germany during and after World War II, and Japan during and after World War II.

The main questions examined are: (1) What is the mechanism whereby external or internal stress brings on economic breakdown? (2) To what degree was the source of collapse, in the instances surveyed, technological (in the form of physical reduction in production possibilities) and to what degree organizational (caused by policy errors)? (3) What were the main forces promoting or hindering recovery from disaster?

For localized disasters, human behavior in response has been generally adaptive, though some observers report a temporary "stunning" effect. Official leaders sometimes do, sometimes do not, respond effectively. Populations outside the impact area are strongly motivated to provide relief and support in the crisis period, though there is commonly an aftermath of recrimination. Examination of the economic impact of air attack, specifically, reveals the importance of such basically technological considerations as the surviving consumer-resource ratio, the elasticity of critical services in responding to increased demands, and the availability of substitutes. Communications, electric power, and other utilities (including transportation) are crucial for coping with disaster. Review of the

bombing experiences of Hamburg and Hiroshima indicates that, in each case, there was greater proportionate survival of population than of material resources; that power, communications, and through transportation were restored within a few days, and other utilities some little while later; and that each city was capable of recovering within a few months to an output level representing a major fraction of pre-attack production.

Russian war communism is unique as a deliberate and thorough-going assault on the related principles of private property (including property in one's own labor) and voluntary exchange. The attempt to run an entire economy like an army, extending to the requisition of crops, the conscription of labor, and the abandonment of money accounts, failed utterly. This collapse was essentially organizational in origin. The New Economic Policy that replaced war communism was associated with a partial recovery toward pre-Revolution production levels, despite a continuing hyperinflation.

The American Confederacy after secession was a rural economy largely deprived of contact with its normal urban trading partners. Some degree of successful adaptation occurred in the form of expansion of cities and of manufactures, but the economy collapsed under the technological pressure of blockade, the economic drain of war, and incursion of Federal forces.

In World War II the manufacturing sector of the Japanese economy was cut off from sources of raw materials by blockade, strained by exceptional war demands, and finally subjected to air attack. By the end of the war the economy had collapsed under these technological pressures. In the postwar period, the Japanese economy was stagnant until the Dodge reforms of 1949. While loss of subject areas and Allied confiscations and controls were factors, the main hindrance to recovery appears to have been organizational in nature; that is, the attempt to encourage recovery by a policy of fiscal deficits to provide funds for generous loans and subsidies. This led to a great

inflation of the monetary supply combined with an attempt to repress price inflation by a complex system of price ceilings, quotas, allocations, and rationing. Where controls were effective the division of labor tended to break down; where ineffective, black markets and illegal trading represented inefficient ways of organizing production.

The German wartime experience paralleled the Japanese. Economic collapse was due to the drain of war, loss of territory, and air attack. In the postwar period, Allied regulations and controls were more significant in Germany than in Japan, and the zonal division was also very important. Again, however, the major cause of lagging recovery seems to have been the system of repressed inflation, leading to a very substantial abandonment of monetary exchange in favor of barter trade. Repressed inflation was not associated with fiscal deficits, but with a vast overhang of liquid funds from the Nazi regime. This excess liquidity was eliminated by a currency reform in 1948, and the economy leaped ahead after the abandonment of the repressed inflation controls.

The experiences reviewed all displayed one or another variant of what seems to be a characteristic organizational phenomenon in disaster -- the breakdown of the money-food trade between cities and countryside. Inflation leads to price controls, price controls to shrinkage of food deliveries, and shrinkage of deliveries to imposition of quotas on farmers, and often, to military collection of crops. In extreme cases (for example, Russia), a large part of the urban population may flee to the countryside. Dramatic economic breakdowns seem to have been primarily caused by the technological effects of physical attack and strain, except in the Russian case where the general assault upon property and the prohibition of voluntary exchange seem to have been more important. Stagnation and failure to recover from disaster were primarily due to repressed inflation fiscal policies, in the cases observed, and recovery took place upon abandonment of those policies. The historical experiences also suggest conjectures, though providing only slender evidential base

for them, that population is commonly "tougher" than material property in the face of physical threats, that proportionate survival of population is much more significant economically than proportionate survival of property, and that consequently recovery is possible over a very wide range of destructive attack.

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I. INTRODUCTION

This historical survey of the economic causes, characteristics, and consequences of, and recoveries from, certain important historical disasters was initially projected to help provide intellectual tools and insights for the comprehension and analysis of the great potential disaster of the present age -- nuclear war. In this Memorandum, however, the topical motive remains somewhat in the background, and only limited and tentative conclusions or inferences will be drawn about the prospects for national survival and recuperation from atomic holocaust. In any case, a survey of historical disasters can stand alone as a topic of the greatest interest and significance in its own right; the behavior of economies under extreme stress may teach us something about even the normal functioning of ongoing economic relationships.

The word "disaster" is used to refer to any substantial impoverishment due to some unusual source of stress that takes place within an economic system. The term "economic collapse" denotes a disastrous situation in which the stresses are so great, or the internal corrective mechanisms so defective or damaged, as to lead to progressive economic deterioration. Symptoms of economic collapse, aside from general drops in statistical indexes of production and consumption, are such phenomena as fall in population, emigration from cities, and cessation of internal trade. Unless the process can be reversed, the consequence is a breakdown in the complex system of production through division of labor, which is the source of the enormous productivity of modern economies. One central theme of this investigation is: Under what conditions do external or internal stresses lead beyond disaster to economic collapse? A secondary theme is: Granted some remission of the original source of stress (for example, termination of a destructive war), what are the conditions promoting or hindering recovery?

Historical disasters may be divided into two categories according to geographical extent: localized and generalized. A localized disaster is usually due to some specific event: tornado, explosion, air raid, and so on. Though geographically limited, it may be very violent or intense, as when the town of St. Pierre on the island of Martinique, with all its 30,000 inhabitants, was wiped out in minutes by the 1902 eruption of Mt. Pelee. Localized disasters are typically sudden in their onset. Historical generalized disasters covering entire societies have been caused by complex social phenomena such as war, famine, revolution, or pestilence. In the past, these have all taken extended periods of time to develop their full effects. Thermonuclear war would be unique in its combination of suddenness of destruction and generalized scale of effect. For this historical review, it was felt desirable to look at both the violent but limited-scale calamities, and the slower-developing but generalized catastrophes, since each type of experience may have a great deal to contribute to our understanding of the economic impact of, and responses to, nuclear attack.

As it happens, there has been an intensive investigation of the disaster phenomenon in the postwar period, though limited almost entirely to specific World War II bombing experiences and to postwar localized events. For localized disasters, we can probably now say that the crucial socio-psychological phenomena are well understood, including the immediate and delayed reactions of the victim population, the established leadership, host populations in case of evacuation, and so on. For this reason, only a brief summary of the general findings about localized disasters have been incorporated here.

For generalized disasters, in contrast, data are typically unavailable, incomplete, or unreliable; statistical series are usually interrupted at the height of the crisis, and are always subject to considerable changes in coverage, content, and accuracy. In addition, the development of a disaster over extended areas and times, the reactions of varied and divided populations, and the difficulties of

determining the nature and success of complex policies, all pose overwhelming problems for analysis. Accordingly, relatively extensive discussions have been provided of four separate historical generalized disasters to help fill the larger gap in our knowledge. The four historical experiences reviewed in detail are: (1) the period of Russian war communism, 1918-21, (2) the American Confederacy, 1861-65, (3) Japan during and after World War II, and (4) Germany during and after World War II.

This survey is based entirely upon secondary sources, as interest here is not in the historical events for their own sake but in the questions of economic behavior and policy on which the events cast some light. For this reason, and because of the weaknesses of the factual record, in each section the major sources upon which the analyses and conclusions are based will be indicated, thus making clear that reliance upon the understanding and interpretations of specialists in each of the experiences surveyed is as great as or greater than reliance upon "objective" facts or data.

One crucial issue will reappear in almost every historical instance of disaster and recovery surveyed: Was the cause of collapse, or of failure to recover adequately from disaster, technological or organizational? If the cause is technological, the production possibilities available to the economy have been so impaired by the stresses imposed as to make recovery (or even, in some cases, maintenance of current levels) difficult or impossible even with perfect organization of the surviving resources. Clearly, where the economic stress takes the form of increasing physical destruction of the resource base, by bombing (as in the case of Japan), or by progressive enemy occupation of the nation's land area (as in the case of the Confederacy), eventually a point will be reached where the economy will break down; the productivity of even the surviving resources will be radically reduced because of functional dependence upon inputs from resources no longer available. In such

cases there may be organizational difficulties in addition -- policy mistakes, unwise resource allocations, and so on -- but the technological explanation would suffice to explain the final result.

If we are to have even a potential recovery situation, there must be some cessation of the stress responsible for the disaster. Nevertheless, it does not follow that a rapid rebound from a depressed economy toward more normal historical levels of production and income is technologically possible. Even without a visible source of continuing stress, the lingering damage to key economic resources or systems may make it impossible to maintain the surviving resources and population. "Bottlenecks" or "vicious circles" may be so pervasive that economic conditions must get worse before a stable level is reached from which growth can be resumed. Or, as a less extreme situation, the economy may not necessarily go downhill, but still not improve without a long interlude of seeming stagnation. However, a thorough exploration of postdisaster technological production possibilities was not attempted in this study. In the historical instances surveyed, whenever failure to recover was observed, organizational difficulties (inflationary monetary and credit policies, interference with the price mechanism, unwise public expenditures, and the like) have seemed to provide an adequate explanation. In some cases, rather direct visible technological considerations seem to have been of supplementary significance. (On the other hand, if we were to consider the more massive levels of destruction in thermonuclear war, and especially the possibilities for the disruption of key ecological or physical systems, lasting technological impairment of recovery potentialities might be serious indeed.) For the cases observed here, the contention that technological limitations were the main source of difficulty should be kept in mind as an alternative hypothesis that cannot be dismissed without a more rigorous investigation than could be provided.¹

¹A theoretical study of such technological limitations, as applied to the hypothetical problem of recuperation from nuclear war, will be found in Sidney G. Winter, Jr., Economic Viability After Thermonuclear War: The Limits of Feasible Production, The RAND Corporation, RM-3436-PR (forthcoming).

II. LOCALIZED DISASTERS: A SUMMARY¹

Even a narrowly limited disaster is, of course, "total" for those who do not survive it, and sufficiently catastrophic for anyone suffering severe personal and material damage. Accordingly, small disasters have a great deal to teach us about the social and psychological consequences of quite large ones. In general, for any disaster it is useful to consider three zones of effect: the total destruction zone, the partially damaged zone, and the economically linked but physically undamaged support zone. Property and human damage are not perfectly correlated, of course; in Hiroshima, there were human survivors even in the "total destruction" zone for property. Still, the distinctions remain generally useful. Among the best documented of the more severe localized disasters are the San Francisco earthquake and fire of 1906 (500 dead), the Halifax explosion of 1917 (2000 dead), and the World War II bombings of Hamburg (40,000 dead), Hiroshima (80,000 dead), and Nagasaki (40,000 dead).

Most studies of localized disasters have emphasized the psychological determinants of the behavior of the population in the impact area, of its leaders, of supporting groups in neighboring areas, and so on. These determinants are not our present concern. However, the typical psychological pattern of reaction to disaster is so well established that it is worth reviewing as a reliable input into analyses of the economic impact of disaster.

¹Major sources employed were F. C. Ikle, The Social Impact of Bomb Destruction (Norman, Oklahoma: University of Oklahoma Press, 1958); S. H. Prince, Catastrophe and Social Change (New York: Columbia University Press, 1920); Human Organization (Special issue: "Human Adaptation to Disaster," N. J. Demerath and A. F. C. Wallace, eds.), v. 16 (Summer 1957). In the Human Organization issue is an "Annotated Bibliography on Disaster Research," by Jeanette Rayner. The Ikle volume also contains a bibliography. An extremely valuable source, containing abstracts and summaries of many separate contributions to the literature; is R. G. Popper and W. A. Lybrand, An Inventory of Selected Source Materials Relevant to Integration of Physical and Social Effects of Air Attack, Human Science Research, Inc., October 1960.

In general, it has been found that the "disaster syndrome" displayed by a population suddenly struck by disaster does not include the wild, asocial behavior described by the more lurid popular writers on such themes. Panic does not ordinarily occur.¹ Survivors first reorient and extricate themselves, and then their families. Some, even when seriously injured themselves, assist others. If there is reason to fear another hazard (explosion, spreading fire, renewed bombing, etc.), there may be hasty flight. All this is rational behavior. Others seem to become temporarily stunned or apathetic, in which condition they will respond to direction but are incapable of independently useful action. In the immediate postimpact period, a strong feeling of community identification is generated, promoting cooperative and unselfish efforts toward repair and relief activity. Gradually, however, this stimulus wears off, after some days or weeks, and concern over unfairness of relief distribution and the like typically leads to considerable recrimination as a more normal society is restored.

A very marked psychological pattern, the "counter-disaster syndrome," typically takes place in the support area, outside the impact zone of the disaster. The crisis calls forth an outburst of generous assistance, both personal and material, from this zone. Volunteer rescuers converge upon the disaster area; food and medicines are freely contributed; refugees are welcomed in reception areas. For many smaller disasters, the material support has been so great as to exceed emergency needs. Some time later, however, a reaction may set in, leading to bad relations between victim and support populations and accusations of ingratitude.

The effect of disaster upon community leadership and essential workers is interesting and important. The conventional leaders may

¹By "panic" is meant extreme and irrational, dysfunctional, or self-defeating physical action. It is rational and therefore not panicky to make all possible haste in fleeing a raging fire. But panic has been observed where, for example, those attempting to flee have jammed a narrow exit so that none could escape. Only rarely do disasters produce this panic-generating condition.

be wiped out by the disaster; but even if not, their effectiveness is at first limited by shock, communications breakdown, and loss of facilities and personnel. Furthermore, within these limitations, leaders and essential workers may function poorly for lack of plans and training in how to deal with emergencies. One crucial problem is conflict between personal and public roles; leaders must worry about their own family needs as well as community needs. Many leaders and essential personnel, it appears, abandon their posts in order to see to their own families' safety. Frequently, it is found, transmitted messages will not suffice, and only the assurance afforded by face-to-face confrontation with other members of the family will permit the worker to return to his task. Personnel who respond most effectively to the emergency are typically those with normal quasi-disaster functions, the army, the police, fire fighters, and so on. The abdication of conventional leadership often leads to the rise of emergent leaders, who are frequently those with less emotional involvement, or with some specialized knowledge or talent. There may also be entrance of leaders from the support area.

Looking at matters now from the economic point of view, the urgent needs in the impact period are rescue, escape, fire fighting, medical aid, and so on; in general, protection from physical hazards. At first, most useful endeavors to these ends are necessarily unspecialized and uncoordinated. The shattering of customary patterns and the breakdown of communications limit assistance to those in the immediate neighborhood. However, some specialized organizations may spring rapidly into action: fire departments, hospitals, civil defense, utility repair services, for example. If these groups are well trained and prepared, they may perform prodigies; if not, they may not function at all.

After the physical hazard abates, the relief phase begins. The prime needs are shelter (in inclement weather), food and water, and clothing. In localized disasters, at least in the recent history of the Western world, relief pours in so quickly and copiously as to

preclude any substantial degree of what might be called "secondary mortality" from exposure and starvation; though of course there will still be much suffering. Planning and training for the required social services in the relief period are of the greatest value.

Finally, there is the recuperation phase in which measures are put under way to restore the economic viability of the damaged area. Here the most crucial needs seem to be utilities -- communications, power, water, sewage, and gas -- to permit industry to function once more and to make the area habitable. Also vital are housing, and restoration of transportation. Even in great historical disasters, it has generally proved technologically and organizationally possible to restore the functioning of the impact area, and the surviving population have generally been strongly motivated to return and rebuild rather than emigrate.¹

In Iklé's analysis of recovery from bomb destruction, he makes use of the concepts of "consumer-resource ratio" and "elasticity."² Disasters destroy resources, but also tend to reduce the demands upon some classes of resources because of mortalities, impoverishment, and decline in economic activity. The demands for a few critical services may not contract, however, and in fact may expand many-fold in the face of the destruction of capacity. These critical resources usually include medical facilities and repair or construction services.

"Elasticity" refers to the expansibility of services performed by the surviving resources. For example, remaining housing can be crowded beyond its normal capacity.³ Similarly, medical facilities

¹St. Pierre has never recovered more than a minor fraction of its previous population, but there the entire original population perished. The same holds true for a number of cities in ancient history destroyed by conquest or natural calamity. During World War II, the St. Georg district of Hamburg was abandoned after the fire raids of 1943, as it was judged too costly to restore under war conditions.

²Iklé, pp. 7-8.

³In Hamburg after the fire raids, only 51 per cent of the prewar dwellings survived, but these sheltered 64 per cent of prewar population. Ibid., p. 40.

can be spread by reducing care for the sick to a spartan level; transport facilities by crowding; and repair facilities by improvised minor restoration (cardboard replacing broken glass windows, for example), by ignoring merely ornamental damage, and so on. The higher the pre-disaster standards, the more elasticity in meeting minimal postdisaster needs.

The availability of certain services that depend upon complex functioning systems cannot always be analyzed in this simple quantitative fashion. For example, electric power generators may survive very well, but if the electrical distribution system is thoroughly smashed it may be impossible to provide electrical service. This is peculiarly important because power is a vital input into almost every other critical service. This suggests one other helpful category, which we may call "substitutability." At least in good weather, shacks or tents may be satisfactory minimal substitutes for housing; trucks may possibly substitute for buses and trains; couriers for telephone services, and so forth. There is, however, no practicable substitute for power in most uses, which underlines the importance of this service. Emergency generators are, to the extent available, a valuable substitute for network power.

It is sometimes suggested that a community hit by disaster tends to "rebound," and may in the long run actually be better off therefor. Prince's pioneer study of Halifax, for example, indicates that the explosion changed social mores in that city from a conservative mold inhibiting economic expansion to a more progressive and commercial attitude. The recoveries of San Francisco, Halifax, Hiroshima and Nagasaki have also been widely hailed as remarkable. In the case of Hamburg, the long statistical series available suggests that the wartime incidents represent only a temporary break in the city's over-all pattern of development.¹ It seems safe to conclude that there is a very powerful tendency to rebound to normal trends, but

¹Iklé, p. 220.

whether the rebound actually tends to carry beyond what would have been the normal level must remain in doubt.

Following is a brief review of what is known about the economic impact of two of the greatest localized disasters of history: the fire raids on Hamburg and the atomic attack on Hiroshima. Hamburg was a city of around 1,700,000 before the war, but pre-attack evacuation (mostly of nonessential personnel) had reduced the population at risk to some 1,500,000.¹ A series of raids over a period of 10 days in July and August of 1943 destroyed about half of the buildings in the city. The attack was mainly incendiary, and perfect weather conditions, combined with the exceptional density of combustible materials in Hamburg, overwhelmed well-prepared and heroic civil defense measures (though fire fighters did succeed in saving whole neighborhoods at the fringes of the mass fires). People proved tougher, generally speaking, than property; the 40,000 fatalities² were around 3 per cent of the population at risk. Most of the casualties were suffered in the night of July 24-25, when a firestorm (a ring of mass fire) was touched off, destroying almost everything within its periphery.

In the aftermath of the raids, Hamburg found itself with approximately as many injured survivors as fatalities. Over two-thirds of hospital beds were destroyed. During the course of the attacks about half of the population had fled the city. Reception areas had been prepared with food stocks and large-scale cooking equipment, and relief services for casualties and refugees were efficiently handled. A considerable effort was put into salvage of consumer goods, and cash grants were made to permit refugees to purchase replacements. Mortuary services also required extraordinary efforts. During this

¹This discussion is based upon data and analysis in Iklé.

²Fatality estimates for Hamburg vary widely, and figures up to 100,000 are found in various accounts. The 40,000 figure is based upon the detailed report of the Hamburg Police President, and is accepted by Iklé, p. 24.

relief phase, support was provided by the Hamburg suburban areas, with supplementation from all over Germany.

Over a period of months, around 300,000 of the refugees were reaccommodated in the city, while some 500,000 were permanently evacuated. Rehousing required compulsory billeting; makeshift shelters proved unsatisfactory and new emergency construction too costly. A "dead zone" of the city was closed off. In the rest of the city, extraordinary effort had to be put into repairs of all kinds. During this recuperation phase, water supply was a difficult problem, even though emergency wells had been dug before the attack. Tank trucks were used to distribute water in areas where the system failed. Disruption of water supply made flush toilets inoperative in some areas, and privies were used. Electricity and gas were adequate within a few days after the last attack. Within four days the telegraph was functioning normally, and the mails within 12 days. Heavy loss of street and elevated cars kept the transit system from full recovery, and the reshuffling of housing in relation to places of work tended to increase transport crowding further. The railroad yards were heavily damaged, but through traffic was resumed in a few days. During the recuperation phase, substitute administrative centers which had been prepared in the suburbs proved very valuable. On the seventh day the central bank was reopened, and business began to function normally. Hamburg was not a dead city. The Strategic Bombing Survey reported that within five months it had recovered up to 80 per cent of its former productivity.¹

The 1940 census population of Hiroshima² was 345,000, but some wartime evacuation had cut the population at risk to perhaps 300,000.³

¹United States Strategic Bombing Survey, Over-all Report (European War), September 30, 1945, p. 72.

²Supplementary sources used here were Report of the British Mission to Japan, "The Effects of the Atomic Bombs at Hiroshima and Nagasaki" (1946), and U.S. Strategic Bombing Survey, "The Effects of Atomic Bombs on Hiroshima and Nagasaki" (1946).

³The U.S. Strategic Bombing Survey estimates the population at risk as 245,000, while the British Mission indicates a figure closer

Hiroshima had escaped previous bombing, and perhaps for this reason the civil defense system was not very efficient. A substantial program of demolition for firebreaks, however, had made considerable progress by the date of the atomic attack, August 6, 1945. Immediate deaths were caused mainly by mechanical injuries from collapse of structures, by direct heat and gamma radiation, and by fire. Deaths at Hiroshima are estimated at 80,000, including fatalities from radiation sickness (mostly in the ensuing few weeks). It is worth noting that there were survivors in shelters and strong buildings practically at ground zero. As at Hamburg, there was a firestorm in the central area. This led to complete destruction of the zone affected, but tended to limit expansion of the fire. (In Nagasaki there was no firestorm, but a moving conflagration, and the fire carried into a less built-up area.) As at Hamburg, people proved tougher than structures. Almost 70 per cent of the buildings in Hiroshima were destroyed, compared with around 30 per cent of population.¹

Again as at Hamburg, injured survivors about equalled fatalities; both were on a much higher proportionate scale than at Hamburg, however. Medical facilities were severely damaged, and the surviving capacity overwhelmed. A flight of population took place immediately after the disaster, a rational move in view of the terrible fire threat, the destruction of the economic mechanisms of the city, and fear of possible re-attack. People began returning within 24 hours, and by November 1945, the city population was back to 140,000. Although information on this topic is not entirely clear, it appears

to 320,000. The Research Department of the Hiroshima Municipal Office is reported to have estimated the population in the city as 407,000, in Hiroshima (Hiroshima Publishing Company, 1949).

¹These proportions are the estimates used by the U.S. Strategic Bombing Survey report. The Hiroshima Municipal Office calculations show an even greater disparity, reporting 22 per cent of population killed and missing but some 89 per cent of buildings as destroyed or needing reconstruction (Hiroshima).

that the lack of efficient civil defense prevented the rescue of many trapped individuals who perished from fire. The fire fighting and police services do not appear to have functioned effectively on the day of the disaster. Surviving hospital and medical services performed to the limits of the supplies and personnel available. Military support and organized rescue and relief activity began to take effect on the next day, August 7.

In the recuperation phase, it is worth noting that the air-burst bomb generally left underground utility networks intact. The gas producing plant and water pumping station survived, but destruction of gasholders prevented service and lack of electricity stopped the water supply. Sewers were undamaged, but sewer pumping stations were inoperative. On August 7 power was generally restored to surviving areas, and through railroad service commenced on August 8. Telephone service started on August 15. Hiroshima was also not a dead city. The U.S. Strategic Bombing Survey reported that plants responsible for three-fourths of the city's industrial production could have resumed normal operations within 30 days (the newer and larger plants in Hiroshima were on the outskirts of the city, and both physical premises and personnel generally survived).¹ By mid-1949 the population had grown to over 300,000 once more, and 70 per cent of the destroyed buildings had been reconstructed.²

For localized disasters, the over-all experience in the crisis and in recovery afterward is broadly favorable. Organizational difficulties do not seem to have been crucial, once the impact phase of the disaster was past. Technologically, several of the elements of the productive mechanism take on critical importance (for example, power and water supply), but in the scale of disaster surveyed the recovery potentials were present to provide sufficient base for a

¹USSBS, "The Effects of Atomic Bombs at Hiroshima and Nagasaki," p. 8.

²Hiroshima.

rebound in the direction of normal levels. The repeatedly demonstrated willingness of populations to put out extraordinary efforts with an exceptional degree of unselfishness in the crisis period is a crucial element in making recovery possible.

III. WAR COMMUNISM IN RUSSIA, 1917-1921¹

Great disasters smash established social relationships as well as physical structures. This is increasingly the case as the scale of disaster expands from a localized calamity, in which the physical and social environment surrounding the impact area may be scarcely affected, to a truly society-wide phenomenon. From the wreckage of the established way of things the community emerges in a somewhat plastic state. The pieces of the social structure must be put together again, but can be reassembled in a number of different ways. In the aftermath of thermonuclear war, for example, it is questionable whether a surviving community would reestablish an economic system based upon private ownership and monetary exchange. We might see, instead, one form or another of what has been called "disaster socialism." The term has no unique accepted referent, but presumably goes beyond the governmental regulation and intervention in the economy experienced in the U.S. in World War I and II, some distance toward the complete substitution of centralized direction over resources in place of the institutions of private property and voluntary exchange. It may go so far as to include total labor conscription in which free choice of occupation, or in effect, private property in one's own person is abolished. Since such an ordinarily "unthinkable" policy may become a real possibility in the plastic postdisaster state, it is of interest to examine "war communism" in Russia, the most extreme effort in modern times to do away with the system of private property and voluntary exchange. The war communism policy arose, of course, out of a unique disastrous situation, but the attempts of the Bolsheviks to cope with the consequences of

¹The main sources employed in this section were M. Dobb, Soviet Economic Development Since 1917 (New York: International Publishers, 1948), Ch. 4-7; A. Baykov, The Development of the Soviet Economic System (Cambridge, England: University Press, 1947), Ch. 1-9; A. Z. Arnold, Banks, Credit, and Money in Soviet Russia (New York: Columbia University Press, 1937), Ch. 4-8; and E. H. Carr, The Bolshevik Revolution, 1917-1923, v. 2 (London: Macmillan, 1952), Ch. 17-19.

external stresses and of their own disruptive policies may convey much relevant information about disasters in general.

The Czarist regime in Russia was overthrown in favor of the Provisional Government in March 1917, and the Provisional Government in turn was overthrown by the Bolsheviks in November 1917. The following four years probably represent the historical ultimate in national social disorganization. Aside from the complete overturn of established political, economic, and social relationships in Russia, there also took place beginning in 1918 a complex Civil War. Reactionary forces, democratic and non-Bolshevik socialist factions, independent peasant movements, and minority national separatists struggled with and against each other and the Bolsheviks. The German role was also important before the defeat of the Central Powers. Germany looked benignly upon the Bolsheviks in Russia proper because of their antiwar position, but at the same time she attempted with some success to incorporate the Ukraine and other areas within her own sphere of rule. Allied interventionists supported the White forces in northern Russia, Siberia, and elsewhere, and in addition the Bolsheviks warred with newly independent Poland. Had all these forces combined their efforts against the Bolsheviks it seems impossible that the communist regime could have survived, but such coordination was never achieved; even so, the success of the Bolsheviks in escaping one threat after another seems to have required miracles of improvisation. By the end of 1920 these various campaigns had come to an end, but dissidence within the Soviet forces flared into the Kronstadt revolt of March 1921, which led directly to the adoption of the New Economic Policy (N.E.P.) in the interests of regaining the popular support lost by the policy of war communism.¹

Turning to economic affairs, the almost complete confiscation or nullification of property rights that occurred in revolutionary Russia was not a deliberately planned undertaking of the Bolsheviks. Rather, recognizing their limited capacity for economic administration and

¹Dobb, p. 120.

sensing the need to feel their way in the transition period, the communist leaders planned originally only to seize and control "the commanding heights" of industry. The pace of confiscation was largely determined by "the elemental forces" of the Revolution. Throughout Russia, peasants were seizing estates, workers were taking over factories, and managers and capitalists were abandoning their properties. Total central control was believed necessary to combat the syndicalist tendencies of such developments, since the usurpers of seized properties frequently began to operate them to their own parochial advantage. In addition, extensions of central State control were thought to be required to overcome the resistance or sabotage of disaffected managers of nationalized or remaining private and cooperative enterprises.

In industry, the final situation was an all-encompassing (in theory) State monopoly. Agricultural products above those necessary for farm subsistence were requisitioned from the peasants by government collectors. Even though the help of the poorer peasants was enlisted, so that the effect was in large part to expropriate those who were better off, considerable resistance was encountered in the countryside. The produce so garnered was rationed to the urban population.¹ Industrial products were also distributed by administrative arrangements to both urban and rural consumers. At first payment was required for the products distributed, in low, fixed prices. But as the inflation progressed these became meaningless, and finally free distribution to consumers was undertaken in the interests of attaining a "natural" (moneyless) economy. In pursuit of this utopian goal, money accounts and profitability calculations were abandoned in operations of and transactions among state enterprises. As for labor, "By the end of this period, labor was conscripted, militarized, and

¹Differential rations were employed so as to provide more food to the manual workers and other preferred Bolshevik categories than to remaining sectors of the population. Members of the former bourgeoisie ranked lowest, generally receiving only around one-third the ration of the preferred groups (Carr, p. 232).

attached to the place of work."¹ The entire economy ran, in principle, under orders like an army; the process of voluntary exchange was rejected and prohibited.

However, black market trade in the form of informal barter, as well as more professional illegal activities by specialized "bagmen," was very important throughout this period. According to Carr, well over half of the foodstuffs consumed by town-dwellers came through extra-legal channels, and a degree of toleration of the trade became a necessity.² Indeed, the existence of this illegal trade was of importance to the Bolsheviks in a variety of ways, one of which was that trade required a medium of exchange and thus created a demand for the money produced by the Bolshevik printing press. The Soviets possessed the plates for Czarist and Kerensky currency as well as Bolshevik, and permitted all of them to circulate legally. In fact, they concentrated on expanding the older currencies (which were preferred by the public) and thus succeeded in diverting a considerable part of the community's wealth to the service of the government.³

One question of topical concern is whether the experience with war communism lends any support to proponents of a policy of "disaster socialism" for other possible disaster situations, specifically, in a post-thermonuclear war environment. The policy of war communism did contribute to the specifically Bolshevik goal of irretrievably smashing the old social order, but as a method for conducting economic affairs it did not seem to work. It is somewhat difficult to validate this conclusion statistically since, aside from the defects of the statistical record, the disruptive effects of the Civil War upon the economy are confounded with the effects specifically caused by the

¹ Baykov, p. 42. A full discussion of the question of the "militarization" of labor will be found in Carr, pp. 208-227.

² Carr, pp. 241-42.

³ It has actually been reported that older currencies exchanged, at times, at a 50-fold premium over Bolshevik. (Arnold, p. 82.)

war communism policy. However, the negative conclusion on the workability of war communism is supported by observers on all sides of the political spectrum, and of course corresponds with the action of the Bolsheviks themselves in abandoning the policy for the N.E.P.¹ Furthermore, it seems to be the case that economic conditions were rapidly deteriorating toward complete collapse in the spring of 1921, after the definitive Bolshevik victory had ended the Civil War.²

A number of points related to the statistical Tables call for comment. Table 1 shows the catastrophic decline of industrial production to 20 per cent of the prewar level by 1920,³ markedly worse for large-scale than small-scale enterprises. Since administration of the large-scale plants was certainly more centralized, this is a rather suggestive result. It is related to the following somewhat

¹Lenin later described war communism as "a mistake," and "in complete contradiction to all we wrote concerning the transition from capitalism to socialism" (quoted in Dobb, p. 123). The following more extended quotation from Lenin may also be of interest:

We are living in such conditions of impoverishment and ruin, of overstrain and exhaustion of the principal productive forces of the peasants and the workers, that for a time everything must be subordinated to this fundamental consideration -- at all costs to increase the quantity of goods ... On the economic front, in our attempt to pass over to Communism, we had suffered, by the spring of 1921, a more serious defeat than any previously inflicted on us by Kolchak, Denikin or Pilsudsky. Compulsory requisition in the villages and the direct Communist approach to the problems of reconstruction in towns -- this was the policy which interfered with the growth of the productive capacity of the country and proved to be the main cause of a political and economic crisis which confronted us in the spring of 1921. (Quoted in Baykov, p. 48.)

²Baykov, p. 47. See also Lenin quoted in footnote above.

³Even more extreme estimates appear in the sources. Dobb quotes statistics showing 1920 industrial production as only 14.5 per cent of the prewar level (p. 1). Baykov quotes 1920 production indexes as 12.9 per cent of 1913 (for fully manufactured products, and 13.6 per cent for goods and services) (p. 195). Detailed statistical production and industries are tabulated in of Industrial Production in the Soviet Union (University Press, 1962), Table B-2, pp. 42.

Table 1
OUTPUT INDEXES FOR RUSSIAN INDUSTRY, 1913-1920

Year	Large-scale	Small-scale	Total
1913	100.0	100.0	100.0
1916	116.1	88.2	109.4
1917	74.8	78.4	75.7
1918	33.8	73.5	43.4
1919	14.9	49.0	23.1
1920	12.8	44.1	20.4

Note:

These indexes were calculated by State Planning Commission (Gosplan), as quoted in Baykov, p. 8.

puzzling question: How did the economy succeed in supporting the Bolshevik Civil War effort in 1918-20, if it approached complete collapse in the period after Bolshevik victory? To some extent, the answer may be that the Bolsheviks in effect used up in the earlier years that portion of the nation's capital wealth formerly in the hands of nobles, bourgeoisie, wealthier peasants, and foreign investors;¹ only toward the end did the impoverishment bear primarily upon the Bolsheviks' own class support. Another and possibly more important explanation is that illegal private or cooperative-syndicalist enterprise continued to function in large sectors of industry, and this, together with illegal "bagman" trade of products (which grew to huge proportions in 1920)² served to maintain a minimally tolerable economy during the Civil War. While theoretically all industry was operating under total State administration, a Census of 1920 reported the existence of some 37,000 State industrial enterprises, of which only 7000 were on the books of the central control agency and thus subject to even nominal control.³ The view that the maintenance of the economy depended to a large extent upon the non-controlled enterprises is supported, of course, by the lesser output decline for smaller enterprises revealed in Table 1. This view is also consistent with the economic collapse after the conclusion of the Civil War. At this point, the Bolsheviks were able to turn to the liquidation of illegal industry and trade, and to centralize what had in the confusion escaped control, thus (on this interpretation) destroying or paralyzing the only effectively functioning

¹"The main material resources on which the country lived during this period were provided not by fresh production but by existing stocks of raw materials, unfinished and finished goods inherited from the pre-revolution period, by compulsory requisitioning of agricultural products and by confiscation from the 'bourgeoisie'." (Baykov, p. 47.)

²Dobb, p. 107.

³Baykov, p. 7n. Carr adds that only some 4500 were regarded as "effectively nationalized" (p. 175).

portion of the economy. In addition, many small capitalists who had stayed on in the hopes of Soviet defeat decamped and abandoned their enterprises. Consequently, the paradox of economic collapse only after political and military victory.

Table 2 suggests the magnitude of the agricultural problem. It seems to be universally agreed that the policy of compulsory requisition of produce above farm subsistence levels (in effect, a 100 per cent tax upon marginal production of the peasant) led directly to reductions in sown area and declines in output.¹ The key provision signalling the inauguration of the New Economic Policy was the March 1921 abolition of compulsory requisitions in favor of a proportional tax (in kind, at first) upon peasant production.² Permitting the peasants to retain a fraction of their produce above subsistence levels led, by an obvious step, to the legalizing of markets in which the surplus could be exchanged for desired goods.

Tables 3 and 4 provide data upon the State budget, the note issue, and price levels. As commonly occurs in disaster situations, the vast bulk of government operations in 1917-22 were financed by the printing press. When such a practice has continued long enough to create a crisis of confidence, historical experience

¹Carr, following a common Bolshevik opinion of the period, places some blame upon the shift to small-scale production (as large estates were converted into individual peasant holdings) as a major cause of the decline in agricultural output and of the trend to subsistence farming (Carr, pp. 168-169). In view of the remarkable output performance of the small permitted private holdings in contrast to the collective farms in the modern Soviet economy, it seems dubious to assign more than a minor negative role to the technological consideration of smallness of scale, in comparison with the effect of the policy of compulsory requisitions. It is an almost universal observation that farmers will work much harder, and produce much more, on their own proprietary holdings than they will as employees on large private or government estates, or on collective farms.

²The 1921 crop, however, was hit by a disastrous drought. Foreign relief played an important role in the 1921-22 famine.

Table 2
OUTPUT AND STOCK MEASURES FOR RUSSIAN AGRICULTURE, 1909-1921

Year	Sown area (million desyatin)	Gross yield of crops (million poods)	Number of horses (millions)	Number of cattle (millions)	Number of sheep and goats (millions)
1909-13	83.1	3,850			
1916	79.0	3,482	31.5	49.9	80.9
1917	79.4	3,350			
1920	62.9	2,082	25.4	39.1	49.8
1921	58.3	1,689	23.3	36.8	48.4

Note:

Quoted from official sources by Baykov, p. 23. The data do not refer to the whole territory of the USSR, but to the territory on which the Census of 1920 was carried out (using the same territory for all years).

Table 3
RUSSIAN STATE BUDGET AND NOTE ISSUE, 1917-1921
(milliard rubles)

Year	Revenue	Expenditure	Deficit	Note issue
1917	5.0	27.6	22.6	16.4
1918	15.6	46.7	31.1	33.5
1919	49.0	215.4	166.4	164.2
1920	159.6	1,215.2	1,055.6	943.6
1921	4,139.9	26,076.8	21,936.9	16,375.3

Source:

Baykov, p. 36.

Table 4

REAL VALUE OF THE TOTAL VOLUME OF PAPER MONEY, RUSSIA, 1914-1922

Year (figures for July or August)	Index of notes in circulation (July 1, 1914 = 1) ^a	Index of prices (1913 = 1) ^a	Real value of volume of money (millions of rubles) ^b
1914	1.0		3,015
1918	26.8	88.5	493
1919	62.0	656	154
1920	313.9	8,140	63
1921	1,439.6	80,700	29
1922	196,288.4 ^c	5,795,000 ^c	55

Notes:

^aOfficial figures, quoted in Arnold, p. 91.

^bCalculated by dividing the volume of paper money by the official All-Union Price Index, in Arnold, p. 93.

^cArnold, p. 129.

indicates that the price level tends to rise faster than the volume of money.¹ The consequent decline in the real value of the money stock represents another dimension of impoverishment of the community.² In addition, from the government's point of view the process may be proceeding so fast that the real revenue obtained from new currency issues no longer justifies the cost of printing and distributing the notes. This apparently was the situation in early 1921.³ In Russia, of course, the threat of repudiation implicit in the ideological drive toward a moneyless economy further reduced the incentive to hold currency. And the spread of barter, facilitated by payment of wages in kind, contracted the range of uses of money. When markets were legalized under the N.E.P and money wage payments were gradually restored, the use of and need for money vastly increased, thus permitting the Bolsheviks to proceed further in the direction of hyperinflation in 1922. In that year they expanded the note issue well over 100-fold, but the increased demand for currency held down the price increase; the real value of the total money volume substantially increased. The printing press operation was thus a highly profitable one in 1922, thanks to the N.E.P., and the Soviets were enabled to continue the hyperinflation through 1924. Nevertheless, definite economic recovery did take place from 1921 to 1924 under the N.E.P. By 1924, industrial production in particular returned to almost half the level of 1913 (see Table 5), while the money supply was rising to some 500,000,000 times the 1914 level, and the price index to 60,000,000,000 on the base 1913 = 1.

¹See Phillip Cagan, "The Monetary Dynamics of Hyperinflation," in Milton Friedman, ed., Studies in the Quantity Theory of Money (Chicago: University of Chicago Press, 1956).

²This decline explains the paradoxical complaints often heard about "shortages" of money in such extreme inflationary situations; in fact, the increasing money stocks do represent lesser real command over goods. Needless to say, such a money shortage will not be cured by printing still more currency. See Arnold, p. 96, for comments on the "currency famine" in Russia.

³Arnold, p. 94.

Table 5
OUTPUT, MONEY, AND PRICES UNDER THE N.E.P., RUSSIA, 1920-1924

Year	Index of notes in circulation (July 1, 1914 = 1) ^a	Index of prices (1913 = 1) ^a	Index of industrial production (1913 = 100) ^b	Index of agricultural production (1913 = 100) ^b
1920	314	8,140	20 ^d	65
1921	1,440	80,700	13	55
1922	196,288	5,695,000	24	69
1923	5,546,713	117,569,000	35	76
1924	496,702,887 ^c	61,920,000,000 ^c	49	69

Notes:

^aArnold, pp. 91, 129, 186-7. Figures are for July (unless otherwise specified).

^bFrom a study by Jean Dessirier, quoted in Phillip Cagan, "The Monetary Dynamics of Hyperinflation," in Milton Friedman, ed., Studies in the Quantity Theory of Money, p. 117.

^cMarch, 1924.

^dBaykov, Table 1.

A somewhat better grasp of the magnitude of the economic disaster Russia suffered in the period of war communism may be obtained from demographic statistics (though here, in particular, it must be remembered that not all the loss can be attributed to the policy of war communism, since the military operations of the Civil War were also significant). Reasonable estimates are that in the period 1917-22 the population of the territory that became the Soviet Union fell by about 16,000,000, not counting war deaths and emigration.¹ City reports generally show, comparing 1920 with 1914, marked increases in death rates per 1000 and decreases in birth rates.² However, perhaps the most significant demographic statistics, from the economic point of view, are those showing depopulation of cities in this period. When people abandon the cities it is usually a sign of a serious breakdown in the division of labor such that physical closeness to sources of food becomes an important requisite for survival. Sorokin reports estimates that 8,000,000 people left the towns for the villages between 1918 and 1920;³ Baykov describes the exodus as reducing the town population by 33.4 per cent between 1917 and 1920; in the greatest and most advanced cities, Moscow and Petrograd, the decline was 58.2 per cent.⁴

It may be convenient to summarize here the main features of war communism for possible comparison with hypothetical policies of disaster socialism:

1. Practically all property rights of upper classes (aristocracy, bourgeoisie, wealthier peasants, and also foreign investors),

¹Pitirim A. Sorokin, The Sociology of Revolution (Philadelphia: Lippincott, 1925), p. 197. Lorimer estimates the "population deficit" between 1914 and 1926 at around 28,000,000, excess civilian deaths accounting for some 14,000,000 of this total (the other categories were military deaths, emigration, and birth deficit). Frank Lorimer, The Population of the Soviet Union (Geneva: League of Nations, 1946), p. 41.

²Sorokin, pp. 202-203.

³Ibid., p. 244n.

⁴Baykov, p. 41.

and the bulk of private properties in "means of production" outside of agriculture, were confiscated.

2. In agriculture, the confiscated properties were divided among the peasants, and operated individually for the most part. "Surplus" production over subsistence levels was requisitioned.

3. Labor was conscripted and subjected to quasi-military discipline; wages were paid largely in kind.

4. All industry was, in theory, centrally directed and administered. Private production and trade were illegal.

5. Government operations were financed by printing money, to the extent that resources were not acquired by direct compulsion.

6. Low, fixed prices were promulgated for the procurement of supplies and materials and the distribution of finished goods on a rationed basis to consumers. As the inflation made these close to meaningless, free distribution was undertaken.

7. There was an attempt to abandon money settlements and money accounts in the operations of and transactions among state enterprises.

The N.E.P., in contrast, was characterized by the following policies:

1. A proportional tax upon farm production was substituted for compulsory requisitions.

2. Private trading was legalized for both agricultural and industrial products, and in fact trade was soon dominated by private businessmen, often called "Nepmen."¹

3. Cooperative productive enterprises, and even those privately owned, were permitted to some extent. In general, however, State enterprises were not denationalized.

¹ Baykov reports private trade as accounting for over 90 per cent of product distribution in 1922 and 1923 (p. 55). Dobb provides somewhat lower estimates, 3/4 of retail turnover and 1/5 of wholesale trade being described as in private hands in 1923 (p. 143). The Nepmen also served as middlemen in trading even among State enterprises.

4. Total centralized planning of operations of State enterprises was abandoned, and separate enterprises were permitted to contract for acquisition of supplies and disposal of products. In addition, money accountability was restored, and enterprises were expected to show a credit balance.

5. Compulsory labor service and wage payment in kind were abolished.

6. The government continued to employ the printing press as a major source of State revenue.

The policies of the N.E.P., as indicated in Table 5, were associated, despite hyperinflation, with a considerable economic recovery in the years 1922-24. This recovery, however, still left the Russian economy far below the levels of production attained in pre-Revolution years.

Russian war communism was, clearly, an organizational crisis, recognized as such at the time and by almost all students of the era since. There were certainly elements present for substantial technological difficulty: human losses in combat and by emigration, destruction of property and loss of production in the World War and Civil War, and cessation of foreign trade. However, the worsening of conditions after the Bolshevik victory and, especially, the dramatic though partial recovery following institution of the N.E.P., constitute almost a crucial experiment between the organizational and technological explanations. This experience is perfectly consistent with the hypothesis that it was the policy of war communism as an organizing technique that was fatally defective. Under the alternative hypothesis, it would have to be argued that some increasingly severe technological constraint was suddenly mitigated in 1922, and the reversal of economic policy was merely coincidental. The major possibility here would seem to be the Civil War itself: a lagged effect might be called upon to explain the observation that the economic disaster waxed as the fighting waned. But the scale of physical destruction following the end of the Civil War was insufficient to explain the drastically low production levels reported in

Table 5. The failure to surpass, by 1924, the level of 50 per cent of the industrial output of 1913 is again consistent with the explanation that the State-dominated economy, even with the enlarged role assigned to the private sector by the N.E.P., was not organizing resources properly.

IV. THE AMERICAN CONFEDERACY, 1861-1865¹

In Kahn's great study of nuclear warfare, it is suggested that a modern economic system may be thought of as integrating an "A Country" and a "B Country." The A Country consists of the cities, which might be destroyed by bombing, and the B Country consists of the hinterland, too dispersed to be vulnerable in the aggregate.² Kahn goes on to argue that the B Country can survive without the A Country (the hinterland without the cities) and, in fact, contains the resources and skills necessary to rebuild the destroyed centers,³ by a process presumably analogous to that in which cities first arose in the course of economic development. The Confederacy, after the interdiction of trade with the northern states, was in a position somewhat like the hypothetical "B Country" in Kahn's analysis. After secession, populations of the loyal and seceded areas were around 22,000,000 and 9,000,000 respectively (about 3,500,000 of the latter total were slaves). But of the united nation's 10 largest cities, only one (New Orleans, captured by Union forces in April, 1862) was in the Confederacy, as were only 10 of the 102 cities of 10,000 population or more. The seceded states accounted for less than

¹Major sources used were E. M. Lerner, "The Monetary and Fiscal Programs of the Confederate Government, 1861-65," Journal of Political Economy, LXII (December 1954) and "Money, Prices and Wages in the Confederacy, 1861-65," ibid., LXIII (February 1955); Clement Eaton, A History of the Southern Confederacy (New York: Macmillan, 1954), especially Chs. 7 and 12; Richard C. Todd, Confederate Finance (Athens, Georgia: University of Georgia Press, 1954); John C. Schwab, The Confederate States of America, 1861-65: A Financial and Industrial History of the South During the Civil War (New York: Scribner's, 1901); E. Merton Coulter, The Confederate States of America 1861-1865 (Baton Rouge: Louisiana State University Press, 1950); and Ralph Andreano, ed., The Economic Impact of the American Civil War (Cambridge, Mass.: Schenkman Publishing Co., 1962).

²Herman Kahn, On Thermonuclear War (Princeton: Princeton University Press, 1960), pp. 74-95.

³Ibid., p. 78.

one-tenth of the total value of manufactured products.¹ The South, furthermore, suffered from an additional disadvantage in that even as a hinterland its economic structure in isolation was extremely unbalanced; the agriculture of the Confederacy was highly specialized in the production of cotton and, secondarily, tobacco. It was, therefore, dependent in peacetime upon trade with the outside world not only for manufactured goods, but even for food. Thus, we see that the self-sufficiency, even on a low level, of a "B Country" should not be casually assumed.

Somewhat counterbalancing the disparity of resources was that the military goal of the South could be more modest than that of the North. To crush the rebellion the Union forces had to conquer; to keep it alive, it was sufficient for the Southern forces to achieve a military stalemate or draw. And, in fact, it was freely predicted by foreign observers that the military conquest of a nation of the geographical extent and with the human and material resources of the Confederacy was quite impossible. The ability of the thirteen colonies to maintain their independence of Great Britain in the American Revolution was given as an example.

In many ways, of course, the South put up an impressive war effort. Estimates vary on the forces enrolled, but at the height of the war they probably comprised between 500,000 and 600,000 men; about 50 per cent of the male white population between the ages of 15 and 50.² The effectiveness of the Southern armies needs no elaboration here. Aside from the vast military enrollment, pressures on the economy included the scarcity of food, clothing, and war materials; blockade of foreign trade and interdiction of normal peacetime

¹The South produced only about 3 per cent of the iron ore, and 6 per cent of the rolled iron. It contained around 10 per cent of cotton milling capacity, and 3 per cent of woollen milling. See Albert D. Kirwan, ed., The Confederacy (New York: Meridian Books, 1959), p. 63.

²About 900,000 served at one time or another as Confederate soldiers. Eaton, p. C9.

trade with the North; gradual paralysis and breakdown of manufacturing and transport systems for want of vital parts and replacements; occupation and raiding of key areas by Federal forces; and the administrative problems of a new nation, compounded by strong states rights sentiment in the recently seceded states. Despite all these, the economy somehow supported the armies for four years of hard fighting before the collapse. Even then, it may be somewhat debatable as to what extent the Southern collapse was economic and what purely military. However, it is generally agreed that, by the end of the war, the Southern economy had collapsed, and the proximate cause was breakdown of transportation.

Before going into the origin of the Southern economic collapse, it is vital to appreciate the fact that it took place under the conditions of increasing strain and pressure described above. So far as the disaster represented by the separation from the industrialized North was concerned, the South made an excellent adjustment. The main economic problems that the Confederacy faced (aside from providing the war goods, manpower, and resources and supplies required for military purposes) were to shift its redundant capacity for producing cotton and tobacco towards other agricultural products, especially food and wool; to set up manufactures for consumer goods and for producing replacements for capital goods of all kinds; and insofar as possible to trade surplus cotton and tobacco externally for the vitally needed manufactured goods. A good beginning was made on a number of these problems.

Cotton production, 4.5 million bales in 1860 and only slightly less in 1861, was cut back sharply in the 1862 crop. Little direct control was employed; the main factors behind the reduction were the unmarketability of cotton and strong moral suasion.¹ The 1863 crop

¹The fall in cotton prices imposed hardships upon cotton planters, who demanded assistance from the government. Various sophistical arguments were put forward as to how the economy would benefit from government purchase of the cotton crop at normal peacetime prices. Secretary of the Treasury Memminger was generally successful in

fell below 1,000,000 bales, and output was halved again in the following years. Tobacco production was also reduced, the consequence of both weakness of markets and direct pressure on producers. As for manufacturing, the Confederate authorities energetically and successfully made provision for the supply of such vital war goods as cannons, small arms, powder, tents, and so on. The provision of shoes and clothing for the armed forces was less successfully managed, but perhaps minimally adequate.¹ On the consumer level, private enterprise and individual ingenuity partially succeeded in producing substitutes for the manufactured goods previously imported or whose local manufacture was previously dependent upon imported supplies or materials. Perhaps the most successful development was homespun cloth.²

Unfortunately, there appear to be no general production statistics for manufacturing under the Confederacy to assist in gauging the magnitude of industrial development. However, we can note that the Southern cities grew rapidly in population, despite the lack of resources for new housing construction. Richmond, Charleston, Wilmington, Atlanta, all became desperately crowded.³ This crowding was in large part caused by rising industrial and administrative employment. (Especially in the later years, another important factor was the influx of refugees from Northern-occupied or threatened areas.) One of the most remarkable new industrial developments was the huge munitions complex at Selma, Alabama. In sum, it appears that here was a "B Country" building an "A Country" -- a hinterland, largely deprived of customary urban services, providing for them by

resisting these pressures; the proposed purchase, of course, aside from straining government finances, would have deterred the desired shift from cotton production. See Lerner, "Monetary and Fiscal Programs," pp. 514-515.

¹On these points, see especially Eaton, Ch. 7, and Schwab, Ch. 12.

²M. E. Massey, Ersts in the Confederacy (Columbia: University of South Carolina Press, 1952), Ch. 5.

³Ibid., Ch. 6.

building new cities, or rather, by enlarging existing ones. That this development could take place, even though only partially, during a period of steady diminution and attrition of the aggregate resources of the South, lends considerable support to Kahn's thesis.

Nevertheless, despite partial success along this line, the Confederate economy ultimately collapsed. The fundamental cause was the increasing pressure of the war, that took two main forms: first, the steady drain upon resources of all kinds as they were channeled into direct fighting needs and away from economically productive employments, and, even more important, the attrition of the country's physical base by Union occupation and interdiction. The fighting between the capitals of Washington and Richmond was largely inconclusive for four years, but the Union forces were, during all this time, making continual inroads upon the Confederacy's western and coastal fronts. In 1861 Missouri was largely cleared of Confederate forces and Kentucky and West Virginia held for the Union; also, several ports were captured or closed to the Confederates, including Port Royal, S.C. In April 1862 came the disastrous loss of New Orleans to Federal amphibious forces. Also in 1862 western Tennessee was captured, including Memphis, leaving only a narrow stretch of the Mississippi open to the South. The ports of Savannah and Jacksonville were also closed. In 1863 Union conquest of the entire Mississippi cut the Confederacy in two, and the Federals also partially blocked the land connection of Texas with Mexico. In 1864 came Sherman's march through Georgia, cutting the Confederacy through once again, with the consequent loss of the cities of Atlanta and Savannah.

The progressive loss of territory and resources made the task of creating an economy able to bear the crushing war burden quite impossible. Nevertheless, it will be worth our while to trace the main features of the economic collapse in some detail. We have seen that direct war needs for munitions were generally met, and the food and clothing situation was at least barely tolerable. Where the

Confederate authorities failed (but unavoidably, in the circumstances) was in maintenance of the supporting economy underlying the war goods industries. Establishments that could have been used to manufacture replacements for vital machinery in all sectors of industry were wholly converted to direct war production. All civilian industry, even the most essential, was seriously hampered by the preferential manpower and supply arrangements for war goods production. Conscription of skilled labor was an important problem everywhere. The railroads of the South were in generally poor condition even before war began, consisting of a collection of small roads with limited interconnections and varying gauges. A few vital links and interconnections were constructed to meet war needs, but no railroad iron was rolled during the war, so new construction required taking up secondary lines. The railroads suffered from loss of skilled labor, war destruction and accelerated wearing out of facilities, and general lack of replacements, materials, and supplies. Meanwhile, coastal and river commerce was substantially stopped by Federal control of the waterways, and horses and wagons were largely impressed for the Confederate Army. Breakdown of transportation was the proximate cause of the economic collapse. Towards the end of the war, resources and stocks of goods lay everywhere useless and subject to looting and deterioration, while the armies and factories were unable to secure vital materials.

We will now turn to a consideration of several policies of the Confederate government which, then and now, have been assigned large roles in the defeat of the Confederacy by some commentators and defended by others. These policies include inflationary finance, the foreign trade policy, and the practices of impressment and price controls. The position adopted here, as can be appreciated by review of the foregoing, is that the Southern economy was crushed by force majeure; even ideal policies could not have redressed the imbalance of resources, given the intense commitment of the North to the struggle. It is still of interest to examine possible Confederate mistakes. Lack of consideration for the problems of the vital

supporting economy underlying the war goods industries has already been alluded to (assistance could perhaps have been provided by increased exemption of skilled labor from conscription, more provision of unskilled slave labor, import of needed materials through the blockade, and so on, though it is doubtful whether any great improvement was really possible).

The policy of the Confederate government on trade does seem to have been somewhat perverse. Export of the huge cotton surpluses in 1861 and 1862 would have been possible, but was discouraged by the government. In the last peace season, 1860-1861 (the 1860 crop), the South is reported to have exported around 2,000,000 bales, and perhaps an equal amount was shipped North before the war began. But in 1861-1862, despite loss of the Northern market, only 13,000 bales are reported as exported of a 4,000,000 bale crop.¹ This, despite the fact that the blockade was scarcely effective in the early years of the war.² The reason was the "Cotton is King" fallacy; by withholding cotton the South hoped to coerce Northern and foreign (especially British) industrialists into supporting the Confederacy. In each of the years 1863 and 1864, with blockade and blockade-running in full swing, amounts on the order of 130,000 bales are reported to have reached England.³ Exports in these later years received the advantage of a European cotton price as much as five times higher than normal; however, the optimal policy for the Confederacy would have been to export while she had the opportunity, possibly holding cotton stocks abroad as a speculation. Not until

¹Schwab, p. 238.

²Eaton, p. 147.

³Schwab, p. 238. Eaton reports 1,250,000 bales as carried from the Confederacy by blockade runners during the whole war. Eaton's figures do not seem consistent with Schwab's, even when allowance is made for exports lost or delivered elsewhere than to England. Illegal trade with the North may account for the difference.

early 1864 did the Confederate government organize blockade-running systematically. And as is well known, a large fraction of the goods imported were luxury items.¹

An even more striking error was the policy of the Confederate government that banned trade through the lines with the North, partly on moralistic grounds, partly again to withhold "King Cotton." This was illogical for several reasons, one of which was that much of the cotton run through the blockade to Cuba or Bermuda was transshipped to the North anyway. But more important, a strict ban on trade through the lines was, for the Union, a logical complement to the sea blockade, a component of the "anaconda" policy of strangling the Southern economy, dependent as it was upon trade with the outside world. In contrast, it was in the interest of the South to break this overland ban almost as much as it was to evade the sea blockade. It is true that the cotton and tobacco that could have been sent north would, to some degree, have helped the Northern war economy; but the Confederacy, its economy collapsing because of inability to dispose of its surpluses for needed imports of all kinds, was in a position where it had to grasp every opportunity. Actually, a substantial (though unrecorded) amount of illegal trade did pass through the lines; despite the attempts of officials on both sides to stop the practice, the temptations to corruption and the real needs of the Southern economy at times proved to be an overwhelming combination.² Curiously, even today historians commonly take a moralistic attitude on this question, and fail to appreciate the fundamental asymmetry in position that made maintenance of the land blockade a wise policy for the Union, but an unwise one for the Confederacy. If anything, it appears that the Union government was more tolerant of "trade with the enemy" than was the Confederate, so that according to this analysis the policies of both sides were somewhat

¹"When Captain Hobart Pasha of the Venus asked a Southern woman in England what was most needed in the Confederacy, she unhesitatingly replied, 'Corsets'" (Eaton, p. 144).

²Schwab has an extensive discussion of this trade (pp. 258-266).

defective; but, of course, the North could more afford to commit mistakes than the South.

Confederate inflationary finance through multiplication of the note issue is often cited by historians as a crucial error of policy, and a major cause of economic collapse. We have seen, however, that even a hyperinflation was not inconsistent with economic recovery in Russia under the New Economic Policy, and of course the American Revolutionary War was successfully prosecuted despite an analogous depreciation of the Continental currency. Inflation is undoubtedly a disturbing factor: if the price level rises faster than the money supply, a real impoverishment occurs because of decreased real liquidity, and if prices rise so fast that no one will hold money, trading must be reduced to a barter basis. This latter effect is an especially fearful loss to an advanced economy; and there was, in fact, considerable resort to barter in the last years of the Confederacy. Still, the inflationary policy was probably more a consequence than a cause of collapse.

The government's problem, of course, was to acquire resources for the support of the war. Only small amounts were secured from foreign loans and partially external sources such as import and export duties and profits from state trading. More important, but nonrecurrent, was acquisition of property of the Federal government and of Union citizens upon the outbreak of war, supplemented by some war booty later on.¹ The major sources were necessarily internal: aside from the printing press these included loans, donations, taxes, and impressments. Impressments, that is, compulsory sales, were requisitions of goods, originally only for the direct needs of the armed forces. Since the sale price was commonly the officially controlled price or some other "just price" when the

¹See Table 6. The \$700,000 or so in currency and specie funds of the United States seized in 1861 was minor compared with the aggregate of Federal property obtained. The naval shipyard at Norfolk and the Harper's Ferry arsenal are worth special mention.

market value was much higher, impressment was often practically confiscation. Furthermore, a huge amount of impressed goods were never paid for, and the "sellers" were left with uncollectible Certificates of Indebtedness. The military were also able to contract for factory-produced goods (blankets, shoes, and so on) on favorable terms by threat of conscription of the labor force and by control over raw materials and transportation.

Systematic year-by-year budgets for the Confederate Treasury do not seem to have been compiled. However, the over-all totals of revenues from various sources may be put together from Todd's study (see Table 6), though these totals are in the fluctuating medium of Confederate dollars. Roughly speaking, the Confederate government's wartime \$3 billion of income was distributed as follows: taxes, 7 per cent; seizures, 17 per cent; loans, 24 per cent; and note issue, 52 per cent.¹ This indicates the source of the inflationary problem.

The successive financial programs of the government were measures of increasing desperation, and only a few comments will be made on them here: (1) The proportion collected by taxes was low for a number of reasons: uncooperativeness of Congress in passing legislation, resistance of State authorities, underestimates of prospective expenditures, popular failure to appreciate the anti-inflationary potential of tax collections as opposed to financing through loans or, especially, through printed money;² and sheer physical difficulty

¹Lerner estimates the proportions of money received by the Confederacy to October 1864 as follows: taxes, 5 per cent; miscellaneous, 5 per cent; bonds, 30 per cent; printing press, 60 per cent ("Monetary and Fiscal Programs," p. 507). These estimates broadly parallel Todd's when it is recalled that Lerner omits the huge amount of impressments unpaid and evidenced only by Certificates of Indebtedness.

²Secretary of the Treasury Memminger appears to have had a remarkable grasp of these relationships, but Congressional and State opposition was insuperable. Nevertheless, Memminger has been commonly regarded by historians as incompetent. He is strongly defended in Lerner, "Monetary and Fiscal Programs."

Table 6

INCOME SOURCES OF THE CONFEDERATE GOVERNMENT

Source	Amount (millions of \$C)	Per cent of total
Taxes^a		
Import and export duties	3.5	0.1
Tax in kind (estimate)	62.0	2.1
Ordinary taxes	<u>142.0</u>	<u>4.8</u>
Subtotal, Taxes	207.5	6.9
Seizures and Donations^b		
Federal funds	0.7	0.0
Sequestration of alien property ^c	7.5	0.3
Specie reserve of New Orleans banks ^d	4.2	0.1
Donations (estimate)	2.0	0.1
Impressments, certified by unpaid Certificates of Indebtedness (estimate) ^e	<u>500.0</u>	<u>16.7</u>
Subtotal, Seizures and Donations	514.4	17.2
Loans^f		
Foreign (Erlanger loan)	15.0 ^g	0.5
Domestic	<u>697.0</u>	<u>23.3</u>
Subtotal, Loans	712.0	23.8
Treasury Notes ^h	<u>1,554.1</u>	<u>52.0</u>
Grand Total ⁱ	2,988.0	100.0

Notes:

^aTodd, p. 156

^bIbid., p. 174.

^cNo estimate available for property taken over from Federal government, other than Federal funds.

^dConfiscated upon Federal occupation of New Orleans.

^eNot the total of impressments, but only those not paid in Treasury notes or other money.

^fTodd, pp. 83-84.

Notes to Table 6 (continued):

^gAmount realized (in foreign exchange figuring \$5 = 1£ sterling) was \$7.7 million (*ibid.*, p. 184). Schwab, after deducting certain costs, estimates the proceeds at \$6.25 million (p. 42).

^hTodd, p. 120.

ⁱCertain minor sources, such as profits from government enterprises (including blockade runners), appear to be omitted, in addition to the value of confiscated Federal properties already mentioned.

of collections under a new and improvised administration in confused wartime conditions.¹ (2) The bond issues were moderately successful at first, but as the depreciation of the currency accelerated, bonds tended to become unsalable since the real yield to holders was negative.² (3) The problem of physical production of the currency notes was an immense one in an economy largely without engravers, suitable papers and inks, and so on. The quality of the notes was unsatisfactory and they were easy to counterfeit. The shortage of currency was such that the government resorted to honoring counterfeits.³ State, municipal, and private notes ("shinplasters"), as well as Federal greenbacks,⁴ circulated freely.⁵ There was also a good deal of barter.⁶ (4) The real cause of the seeming money scarcity, as of the money famine of the Russian inflation and of other inflationary incidents, was the fact that the price level was rising faster than the money supply thus reducing the real command over goods and services represented by the money stock. In inflations generally, the price level tends to rise beyond the money supply once inflationary expectations become established in the public mind. In the Confederate case (see Table 7), this pattern was reinforced by the growing fear of total loss of exchange value of Confederate treasury notes as a result of ultimate Federal victory. (5) One of the expedients employed to arrest the rise in

¹The tax in kind proved particularly difficult and wasteful.

²Memminger repeatedly proposed a compulsory loan, but it was not adopted (Lerner, "Monetary and Fiscal Programs," p. 516.

³Ibid., p. 520.

⁴The use of Federal greenbacks as medium of exchange or store of value represented a real loss to the South. If they had not served as currency (that is, if Confederate issues had monopolized the monetary function) the greenbacks in southern hands could have secured more resources for the Confederacy by purchases abroad or through the lines.

⁵Schwab, Ch. 8.

⁶Ibid., p. 164.

Table 7

MONEY AND PRICES IN THE CONFEDERACY

Date ^a	Index of stock of money (Jan., 1861=1) ^b	Index of commodity prices (Jan., 1861=1) ^c	Index of real value of money stock ^d
1861:			
Jan.	1.0	1.0	1.00
April	1.3	1.0	1.29
June	1.3	1.1	1.17
Oct.	1.8	1.4	1.34
1862:			
Jan.	2.5	1.9	1.33
April	3.0	2.8	1.07
June	3.4	3.3	1.02
Oct.	5.0	5.2	.95
1863:			
Jan.	6.9	7.6	.90
April	6.7	11.7	.57
June	9.6	13.0	.74
Oct.	11.3	18.6	.61
1864:			
Jan.	11.6	27.8	.42
April		44.7	
June		42.0	
Oct.		40.0	
1865:			
Jan.		58.2	
April	20 ^e	92.1	.22

Notes:

^aFigures through January 1864 from E. M. Lerner, "Money, Prices, and Wages in the Confederacy," p. 29.

^bTreasury notes plus bank notes and deposits. Not adjusted to eliminate interbank deposits, but excludes supplementary currencies circulating.

^cFrom April 1864 on, the general price index of the eastern section of the Confederacy is used (*ibid.*, p. 24).

^dIndex of Stock of Money divided by Index of Commodity Prices.

^eCrude estimate of author, summing \$1,550 millions in Confederate notes, \$250 millions for bank notes and deposits, and adding around \$200 million for supplementary currencies.

the money supply and commodity price level was a currency reform. The reform provided that all currency not converted into bonds before April 1, 1864 had to be exchanged for new notes at the rate of three to two. While a temporary dip in the price level was thus achieved, the basic inflationary processes continued unabated, and prices soon resumed their upward march.

We may now turn to a consideration of the much debated Confederate policies of price control and impressment. Throughout history, kings and governments in need have debased the coinage and multiplied the note issue. Typically, the contemporary publics have blamed the consequent inflation of prices upon the greed of speculators, merchants, blood-suckers, and the like. Legislation to hold prices down by fiat is thus an almost universal concomitant of monetary inflation. In the Confederacy, maximum prices were first fixed, apparently, to regulate the compensation for impressed goods. The scope of impressment steadily widened; at first only direct military needs of the national government were so met, but eventually impressment was employed for all purposes of all government units in the Confederacy. In addition, there was heavy pressure upon private transactions to comply with the published price lists.

The consequence of these policies was a partial breakdown in the commerce between city and countryside. A farmer, bringing his produce to city markets, had to risk impressment or other unremunerative sale of his produce. Often, impressment of horse and wagon was an even more serious threat. As a result, provisions were scarce and expensive in all the cities, yet often plentiful in the countryside.¹ The next step, therefore, was the dispatch of impressment officers into the countryside. This measure caused great bitterness and political disaffection; the impressment system collapsed in 1865, and the government was forced to pay market prices with its last

¹Schwab, p. 180. Physical difficulty of transportation was also an important explanation for this disparity.

specie hoards.¹ During the time it was effective, the threat of impressment led to concealment of goods and production for subsistence rather than for marketable surplus; both were catastrophic in the economic situation of the Confederacy. It is unclear, however, whether one characteristic phenomenon of economic collapse -- flight of population from the cities back to the countryside -- was actually observed in the Confederacy. (The unsettled state of the countryside, with Northern troops, Southern deserters, hungry refugees, and freed or escaped slaves roaming about, tended to deter flight from the cities.)

The following few comments are added about phenomena observed in the Southern Confederacy that may be of wide relevance for disaster situations:

(1) There was quite a good deal of State and local discord, bordering upon disloyalty, in the Confederacy. Quite aside from pro-Union sentiment in some areas, there were innumerable instances of uncooperative actions, particularly on the state level. Such vital war measures as conscription² and tax collections³ were obstructed by some governors. North Carolina retained the products of its textile industry for its own troops and civil population exclusively.⁴ In Georgia, the governor prevented effective coordination of the militia with the Confederate forces opposing Sherman.⁵

(2) Class antagonisms also grew more intense. The main conflict was between the slave-holding aristocracy (which group supplied the great bulk of the Confederate leaders) and the less affluent whites. The conviction gradually spread among the latter that they

¹Todd, p. 169.

²Schwab, pp. 200-201; Eaton, p. 264.

³Lerner, "Monetary and Fiscal Programs," p. 509.

⁴Eaton, p. 251.

⁵Ibid., p. 264.

were fighting someone else's battle.¹ The bitter feeling against nouveaux riches -- blockade-runners, merchants, and speculators -- should also be mentioned.

(3) The policy of the Union government toward Confederate financial arrangements seriously increased the difficulties of the South. From the first, there was no question of Confederate currency or debts of the Confederate government (including its bonds) ever being honored in any way by the Federal government. In consequence, the usefulness of Confederate currency as a store of value was seriously impaired from the beginning, and became increasingly poor as the prospect of Federal triumph neared. As had already been noted, Federal greenbacks successfully competed with Confederate notes and played a substantial role as both circulating medium and store of value behind the Confederate lines.²

Only a very limited discussion of the postwar recovery of the former Confederate states can be provided here.³ In the postwar years the South was heavily burdened by the human and material losses

¹Ibid., pp. 271-273; Schwab, p. 224.

²It is worth remarking here that Union policy toward enemy finances in the Civil War was much more intelligent than the corresponding Allied policy in World War II. In the occupation of enemy territories during World War II, it was Allied practice to introduce new currency at par with the old, the latter continuing to play a major role as the circulating medium. Since enemy governments (for example, Mussolini's "Fascist Republic") held the plates for old currency, they were able to produce claims upon the resources behind the Allied lines simply by printing more notes. W. D. Grampp, "The Italian Lira," Journal of Political Economy, LIV (August 1946), p. 322. (In fact, the old currency, being valid on both sides of the fighting lines, had superior acceptability for this reason as well as having the advantage of familiarity.) Repudiation of the enemy currency would have impaired its utility and thus would have diminished the real revenue obtainable by the enemy through his printing press.

³The main source used for this section is Eugene M. Lerner, "Southern Output and Agricultural Income, 1860-80" in Andreano, ed., Economic Impact of the American Civil War. A secondary source is James L. Sellers, "The Economic Incidence of the Civil War in the South," ibid.

of the war; social disorganization caused by problems of adapting to the changed status of the former slaves; and what amounted to a continuing indemnity in the form of taxes collected for service of Union war bonds and war pensions (Confederate bonds were, of course, voided, and no Federal pensions were paid for Confederate war service).

The Southern economy appears to have recovered faster in the manufacturing than in the agricultural sector. Table 8 provides a selection of significant statistics. In general, the physical data for agriculture show recovery by 1880 to about the levels of 1860. The farm value data actually show 1880 as still well below 1860, but this seems to be largely a reflection of cyclically low farm prices in the years just before 1880. The gross farm income data in Table 9, on the other hand, show a rather rapid recovery that contrasts with the depressed farm value series. The two series are not logically inconsistent, in that a sharp increase of farm costs of production (especially, of course, the need to hire free labor) could explain high gross income but low farm values. The difference in price levels should also be borne in mind. The consumer price index was 167 in 1866 (1860=100), and declined to 142 in 1870 and 110 in 1880.¹ Thus, the comparative steadiness of the postwar gross farm income data really represents gradually rising physical production combined with gradually falling prices. In manufacturing, although the value of products, considered in real terms, did not rise as fast as the number of laborers employed, the recovery was nevertheless superior to that in agriculture; production was approaching the real prewar level by 1870. Transportation, especially railroading, also recovered rapidly.²

¹ Andreano, p. 181.

² Lerner, in Andreano, p. 97.

Table 8
POSTWAR SOUTHERN RECOVERY -- AGRICULTURE VERSUS INDUSTRY, 1860-1880

Year	Agricultural statistics				Industrial statistics			
	Milch cows		Farm acreage		Laborers		Value of products	
	Thousand	Index	Million	Index	Thousand	Index	Million \$	Index
1860	2706	100.0	200	100.0	111	100.0	155.5	100.0
1870	1852	68.4	157	78.2	144	130.3	199.0	127.9
1880	2818	104.1	197	98.3	172	155.0	240.5	154.6

Source:

E. M. Lerner, "Southern Output and Agricultural Income, 1860-80," in Ralph Andreano, ed., The Economic Impact of the American Civil War, pp. 92-93.

Table 9

POSTWAR SOUTHERN RECOVERY OF AGRICULTURAL PRODUCTION,
WITH SPECIAL REFERENCE TO COTTON

Year	<u>Gross farm income, cotton</u>		<u>Gross farm income, 11 crops^a</u>		Year	<u>Cotton output</u>	
	Million \$	Index	Million \$	Index		Million pounds	Index
1859	278	100.0	576	100.0	1859	2373	100.0
1866	337	121.2	490	85.1	Annual average, 1866-70	1213	51.1
1867	245	88.1	500	86.8			
1868	236	84.9	543	94.4			
1869	311	111.9	527	91.6			
1870	339	121.9	602	104.7	Annual average, 1876-80	2395	100.9
1875	280	100.7	588	102.2			
1880	351	126.3	608	105.7			

Note:

^aThe 11 crops are cotton, tobacco, sweet potatoes, wheat, potatoes, corn, oats, hay, rye, sugar cane, and rice.

Source:

E. M. Lerner, "Southern Output and Agricultural Income, 1860-80," in Ralph Andreano, ed., The Economic Impact of the American Civil War, pp. 90-103.

The dominating reason for the differential recovery pattern was the need to reorganize both techniques and social relations in agriculture, which was formerly conducted predominantly by slaves. Manufacturing, on the other hand, had a predominantly white labor force. As compared with this organizational factor, all other possible explanations seem to be insignificant. However, on the technological side it should be mentioned that there were severe losses in livestock in the war; this form of agricultural capital is, for biological reasons, peculiarly difficult to expand rapidly in the absence of substantial imports of stock.

V. JAPAN'S ECONOMY: DEFEAT AND RECONSTRUCTION¹

Japan's problem in World War II was in some ways very similar to, in other ways interestingly different from, that of the Confederacy in the Civil War. Like the Confederacy Japan was, economically, hopelessly inferior to her enemy. Her grand strategy required quick military victories and then a stubborn defense to induce the enemy to agree to a negotiated peace on acceptable terms. Japan's economy, again as in the case of the Confederacy, was highly unbalanced and critically dependent upon external trade; for Japan, however, it was imports of raw materials rather than of manufactures and capital goods that were vital. Japan's crucial scarcities, in rough order of urgency, were of petroleum, iron ore, and bauxite. For each of these only a very small fraction of needs could be met from home sources. Next most serious were coal and foodstuffs, both produced predominantly at home but with considerable import supplementation.

To meet military requirements for these scarce commodities Japan counted upon heavy initial stocks, continued imports from areas already under her domination (chiefly Korea, North China and Manchuria, and Formosa), and captures of stocks and of producing capacity in the Philippines, East Indies, China, and southeast Asia. This program was completely successful at first. But the Japanese soon found the American blockade (primarily by submarine, secondarily by air) unexpectedly effective in cutting off supplies from and shipments to the newly captured and even the old subject areas. As the net tightened inexorably in the later years of the war, almost all of the merchant

¹Major sources used in this section were Jerome B. Cohen, Japan's Economy in War and Reconstruction (Minneapolis: University of Minnesota Press, 1949) and Japan's Postwar Economy (Bloomington, Indiana: Indiana University Press, 1958); G. C. Allen, Japan's Economic Recovery (London: Oxford University Press, 1958); and United States Strategic Bombing Survey, The Effects of Strategic Bombing on Japan's War Economy (December 1946).

marine was sunk¹ and Japan's military machine and war industry became strangled by interlocking shortages. The Allied recapture of such areas as Burma and the Philippines contributed only to a minor extent in worsening the situation, since the sea blockade had already largely cut off those regions. Finally, the great air attacks were effective in causing unprecedented civilian death and misery, with consequent impact upon morale. Economically speaking, however, the air attacks were somewhat redundant in that the industrial capacity destroyed was already largely idle for lack of materials.²

In view of these insurmountable technological difficulties -- poverty of resources at home, interdiction of vital imports, and the ever-increasing weight of bombing attack -- no economic policy available to Japan could have prevented the collapse. To illustrate the source of the difficulty, Table 10 shows the constriction of supplies of three crucial materials, iron ore, crude petroleum, and coal, commodities that represent different degrees of import dependence. In all three cases, imports dropped off catastrophically in 1944, and were practically nil in 1945. One point worth noting is the enormous inventory level in petroleum carried by Japan before war began, equal to around 2 years' normal consumption. This was a deliberate policy of the Japanese militarist leaders in preparing

¹There were 5296 thousands of gross tons of shipping operable on December 7, 1941. In addition, 3293 thousands of gross tons of new shipping was built during the war, and 822 thousands captured or salvaged, a grand total of 9411 thousands of gross tons. Of this total, 8617 thousands or 91.6 per cent was sunk during the war (Cohen, War and Reconstruction, p. 267).

²Ibid., p. 107. However, the Strategic Bombing Survey pointed out that the economic effectiveness of air attack was limited by the mission assigned to it. To facilitate a ground force invasion of Japan anticipated for the near future, the bombing plan dictated attacks on such targets as oil refineries, aircraft plants, etc. Had the mission of the air attack been to contribute optimally to the economic collapse of Japan, an attack on land transport systems (especially rail) would have intensified the effects of the sea blockade (USSBS, Japan's War Economy, p. 3).

Table 10

JAPAN'S WARTIME SUPPLIES OF THREE CRUCIAL MATERIALS

Fiscal year ^a	Iron Ore ^b		Crude Petroleum ^c					Coal ^d		Total production plus net imports
	Iron content of domestic production	Iron content of imports	Total iron content	Domestic production	Imports	Total new supply	Inventories	Domestic production	Imports	
1940	564	3,095	3,659	2,063	22,050	24,113	49,581	57,309	10,123	65,941
1941	745	3,021	3,766	1,941	3,130	5,071	48,893	55,602	9,585	63,448
1942	1,179	2,911	4,090	1,690	8,146	9,836	38,229	54,178	8,748	61,330
1943	1,459	2,147	3,606	1,814	9,484	11,662	25,327	55,538	6,029	60,467
1944	1,911	925	2,836	1,585	1,641	3,226	13,816	49,335	3,135	51,756
1945-I ^f	1,376	268	1,844	1,624	0	1,624	4,946	43,508	752	44,012
II ^g	na	na	na	1,612	0	1,612	3,029	20,952	0	20,952

Notes:

na Indicates not available.

^aThe Japanese fiscal year begins in April of the same calendar year. Thus, the first quarter of fiscal 1940 consists of April, May, and June of calendar 1940.

^bThousands of metric tons in home islands. Cohen, War and Reconstruction, p. 116.

Thousands of barrels, Japanese Imer Zone. Ibid., p. 134.

^dThousands of metric tons, Japan proper. Ibid., p. 160.

^eCrude plus refined petroleum, at beginning of period.

^fFirst quarter, annual rate (except petroleum inventories).

2Second quarter, annual rate (except petroleum inventories).

for war; it contributed enormously to the effectiveness of the Japanese war machine. Nevertheless, the fuel stringency eventually became so severe as to hinder even the most urgent military measures, such as tactical movements of major naval vessels.¹

By using up accumulated stocks of materials and goods in process, production of finished goods was maintained at a high level for some little time after the downturn in imports (the over-all peak of war production occurred in September 1944). After that date, output in all categories dropped sharply, as indicated in Table 11. A particularly significant commodity is rice, figures for which are shown in Table 12. Even these figures understate the seriousness of the situation, for the supplemental foods were in relatively poorer supply than was rice. In the last months of the war, the government in desperation cut back imports of all other materials in favor of foodstuffs.² Nevertheless, there would have been starvation in Japan had the war continued through another winter.³

As in the case of the American Confederacy, we can conclude that the economy of Japan was crushed by force majeure. Again, it will be of some interest to examine the policies pursued in the course of the collapse. But we will pass over these rather quickly, in order to concentrate upon the period of recovery from collapse under the postwar Occupation.

It is worth noting, first of all, that Japan's war economy was administered in much the same way as were the war economies of Germany, Great Britain, and the United States, in orthodox twentieth-century style, so to speak. The government secured resources primarily by market or contract purchases from the private sector,

¹Cohen, War and Reconstruction, p. 144.

²Ibid., p. 107.

³Ibid., p. 386.

Table 11
EXPANSION AND DECLINE OF JAPANESE WAR PRODUCTION
(1941=100)

Category	December 1941	September 1944	July 1945
Aircraft	126	502	221
Army ordnance	116	224	127
Navy ordnance	113	581	250
Naval ships	100	233	110
Merchant ships	103	461	92
Motor vehicles	134	35	9
Total	115	339	139

Source:

Cohen, War and Reconstruction, p. 196.

Table 12
RICE IN WARTIME JAPAN
(thousands of metric tons)

Year	Domestic production ^a	Imports ^b	Total new supply	Stocks ^c
1941	8,245	2,517	10,762	1,178
1942	9,999	2,581	12,580	392
1943	9,422	1,183	10,605	435
1944	8,784	874	9,658	384
1945	6,445	268	6,713	133 ^d

Notes:

^aCohen, War and Reconstruction, p. 368.

^bIbid., p. 369.

^cIbid., p. 367. Figures are for October 31 of each year.

^dAn additional 245,000 tons of rice was set aside as an emergency reserve from military stocks in November 1944. Of these, 130,000 tons were destroyed in air raids by the end of the war.

financed by creation of credit through the banking system or by direct multiplication of currency. (The purchases were not always on a voluntary basis, however. Farmers in Japan, for example, were required to deliver preassigned quotas to the government collectors at the low legal prices -- a practice suggesting the "requisitions" of war communism or "impressment" under the Confederacy.) The accumulation of financial claims in the private sector, coinciding with a real diversion of resources to government war activities, led to strong upward pressure upon prices. An attempt was made to contain this pressure by a universal price freeze, leading in turn to other difficulties.

First, the prices frozen at low levels relative to the supply-demand balance could no longer serve the function of allocating resources effectively. There were "shortages" everywhere. On the consumer level this led to rationing in order to assure a more even distribution of food, clothing, and so on. On the producer level, control agencies were established on an industry basis to organize production, arrange for provision of raw materials and labor, and for distribution of output. Alongside the legal method of administered distribution of resources under controlled prices flourished black markets, with illegal exchange of commodities for money at uncontrolled prices.¹ Barter and "trekking" to the countryside to barter for food were important activities. As many as 900,000 persons are reported as trekking from Tokyo on a single Sunday.² (Trekking is not only an extremely inefficient mode of food distribution, but perhaps even more harmful as a cause of factory absenteeism.)

The next difficulty caused by the price freeze was the reduction in incentives to produce. As necessary inputs became scarce at legal prices, the real costs of production rose. Farmers, in particular,

¹An estimate has it that 80 per cent of all perishables were sold on the black market towards the end of the war (Cohen, War and Reconstruction, p. 378).

²Ibid.

tended to withhold supplies from the market, and may be presumed to have redirected their production patterns away from the market and toward farm self-sufficiency. This tendency was countered by a number of government policies. First, the government granted increases in the official price list fairly frequently.¹ Second, the black market was tolerated to a degree: in the case of food, the government concentrated attention upon the controlled distribution of the rice ration, so that other foods were distributed primarily through illegal channels.² Third, the government resorted to a system of compulsory quota deliveries for farmers, while industrial production was at least theoretically under such control from the beginning. Here the policy was rather ingenious, in that while the compulsory quota delivery had to be made at a low price, deliveries beyond the quota levels received the benefit of a premium incentive price. Finally, and most important, the government made use of the expedient of general production subsidies in an attempt to maintain high prices for producers and low prices for consumers. (Such subsidies were also employed, not quite to the same extent, by Germany, Britain, and the United States in World War II.) A subsidy of sufficient magnitude for a particular commodity can, of course, provide the same incentive to produce as a similarly high uncontrolled price. On the other hand, the low price paid by buyers tends to discourage economizing on use of the subsidized commodity (for consumers who can actually obtain a supply). The differential between producer and consumer prices in Japan could only be financed by the government through further creation of credit, thus intensifying the very sources of the inflation whose effects the government was attempting to ameliorate or disguise.

Table 13 contains some salient data relating to the financing of the Japanese war effort. We can observe that between year-end

¹Ibid., p. 359.

²Ibid., p. 374.

Table 13

WARTIME FINANCIAL DATA FOR JAPAN
(billions of yen)

Fiscal year ^a	Government revenue ^b	Government expenditure ^b	Deficit ^b	National debt ^c (end of fiscal year) ^d	Note issue ^f of Japan) ^g	Index, 1941=100	
						Retail prices, official	Retail prices, real ^h
1940				31.1	4.8	99	86
1941	5.8	19.2	13.4	41.8	6.0	100	100
1942	9.8	24.7	14.9	57.0	7.1	101	130
1943	13.4	32.1	18.7	85.1	10.3	113	153
1944	18.5	77.6	59.1	150.8	17.7	139	191
1945	27.2	103.8	76.6	177.7 ^e	55.4	169	na

Notes:

na Indicates not available.

^aThe Japanese fiscal year begins in April of the same calendar year (see footnote to Table 10).

^bCohen, War and Reconstruction, p. 88.

^cIbid., p. 89.

^dThe figure for the national debt at the end of the fiscal year refers to March 31 of the following calendar year. Thus, the 1940 figure refers to March 31, 1941.

^eThis figure is as of September 30, 1945.

^fFigures for December 31 of calendar year. S. Shiomi, Japan's Finance and Taxation, 1940-1956 (New York: Columbia University Press, 1957), p. 4.

^gIbid.

^hCabinet Bureau of Statistics consumer price index for wage earners in Tokyo, cited in Cohen, War and Reconstruction, p. 356.

ⁱMorita index calculated to include black market transactions (ibid.).

1941 and year-end 1945 the note issue was multiplied around 9-fold. The total money supply (currency plus demand deposits) rose about 4-fold, from around 44 to 175 billion yen in this period. (The ratios of increase would be somewhat lower if calculated to the termination of hostilities instead of year-end 1945.¹) The real price level approximately tripled during this period; apparently, the type of inflationary expectations associated with flight from money and consequent acceleration of prices beyond the money supply had not definitely set in during the Japanese wartime period. However, as we shall see, the willingness of the Japanese public to absorb further increases in money supply was limited.

The following are some remarks on various organizational aspects of the Japanese war economy:

1. In wartime Japan, the Army and Navy successfully resisted civilian regulation of war production under their auspices. In competition with the civil administration and with one another, the Army and Navy failed to turn over materials under their control, issued overriding priorities to their suppliers, and sometimes even refused to report important data on production and imports.

2. The Japanese did not undertake a dispersal program for industry until much too late, in 1945. The effect was catastrophic, as the attempt to disperse under conditions of heavy air attack and a collapsing economy only compounded the disaster. The few firms that had dispersed earlier on their own initiative made the transition successfully.²

¹The note issue as of August 15, 1945, when the war ended, has been reported at 30 billion yen (Cohen, Japan's Postwar Economy, p. 84), representing only a 5-fold multiplication of the figure for December 31, 1941. Unfortunately, we have only the year-end figure for bank deposits, but it is believed that in the case of deposits there is not a large disparity between the figures for the two dates. These considerations lead to the conclusion that total money supply was multiplied around 3 1/2-fold on the wartime period proper. (It should be noted that certain contradictions appear in the statistics quoted for this unsettled period.)

²Cohen, War and Reconstruction, p. 82.

3. The Japanese had a war damage indemnity program that apparently worked successfully to the end of the war.¹

4. Although taxes covered only about 20 per cent of government expenses, a compulsory national savings association was organized that helped hold down civilian consumption. Savings were deposited in financial institutions which in turn were enabled to lend money to war industry or to government. Almost all bond sales were to the banks rather than the public.

During the postwar recuperation of Japan, in contrast with postwar Allied policy toward Germany, the Occupation authorities did not attempt to smash the entire Japanese political and civil structure. Instead, Japanese forms and institutions were used for Occupation purposes, subject to purging of unwholesome individuals and forces. A Japanese administration, therefore, was more or less responsible for economic recovery throughout the period, although it was subject to the overriding directives and less formal pressures of SCAP (Supreme Commander, Allied Powers), the Occupation authority. Of course, the objectives of the two administrations were rather different. The goal of SCAP was, at first, to reform Japanese social and economic arrangements in the belief that this would prevent Japan from menacing other nations in the future. In time, the goal gradually shifted to that of incorporating a reformed democratic Japan into the world-wide system of alliances against Soviet expansion. Consequently, while the Japanese administration was presumably concerned with economic recovery from the beginning, the Occupation at first was scarcely interested in that objective.²

¹United States Strategic Bombing Survey, Final Report Covering Air-Raid Protection and Allied Subjects in Japan (February 1947), p. 14.

²The Basic Initial Post-Surrender Directive to SCAP, forwarded on November 8, 1945, specified: "You will not assume any responsibility for the economic rehabilitation of Japan or the strengthening of the Japanese economy." Edwin M. Martin, The Allied Occupation of Japan (Stanford, California: Stanford University Press, 1948), p. 135.

The prior interest of SCAP was, rather, in reparations to other nations, victims of Japanese imperialism, subject only to maintaining Japanese per capita income at an austere minimum level (fixed at that of 1930-34).¹ SCAP soon grew concerned about recovery, however, when it became apparent that American financial aid would be necessary to maintain minimal living standards and that an economy in distress provided a poor background for social and political reforms.

At the beginning of the Occupation Japan was economically prostrate. Practically all industrial production statistics plunged rapidly towards zero in 1945. The 1944 rice crop had been about 10 per cent below normal, but the 1945 harvest, not yet in at the date of the surrender, proved to be disastrous, 30 per cent or more below normal. In addition, the supplemental foods (grain, vegetables, fish) were in very low supply,² and imports had practically stopped. Furthermore, around one-third of the nation's urban housing had been destroyed;³ stocks of crucial materials -- coal, oil, and iron ore -- were exhausted; the merchant marine had been sunk; all overseas investments and colonies were lost; and the list of difficulties, aggravated by population increase through natural growth and voluntary or forced repatriation of Japanese nationals from abroad, could be extended indefinitely.

The situation was not entirely without bright spots. Almost immediately upon surrender, the economy was relieved of the burden of supporting a huge military machine. In 1943 and 1944, war

¹This level was specified in a directive of January 23, 1947, at a time when the performance of the economy fell far short of that standard (Cohen, War and Reconstruction, p. 419).

²Ibid., p. 368. There is some reason to believe, however, that the food crops may have been substantially understated because of diversion of production from legal channels into the black market.

³USSBS, Japan's War Economy, p. 41.

expenditures had amounted to around 40 per cent of the gross national product.¹ In all sectors of the economy, withdrawal of resources from war and war-supporting industry made potentially available the means for a vast increase in civilian production. To cite one example, during the war fertilizer production had been cut back to promote the manufacture of explosives; starting with the 1946 crop, increased availability of fertilizer could be expected to augment domestic farming yields. Increased labor supply from demobilization of the armed forces and release of workers from war factories could also be expected to contribute substantially to agricultural production. Elimination of military demands on industry should have made it possible for the latter to make available once again supplies of vital farm tools, processing equipment, and so on. Another potential bright spot to a country subject for years to increasing, and finally total, blockade was the reopening of international trade. In a postwar world desperate for goods, Japan's talent for cheap mass production could reasonably have been expected to yield her substantial income with little delay.

Despite these favorable factors, Japan's recovery was slow and halting in the early postwar years until 1950, the year we will take as the end of the recuperation period. The Dodge reforms of 1949 finally pointed the way out of the economic morass, while the Korean War beginning in mid-1950 launched Japan into her first postwar boom. The Korean fighting tapered off in 1951 and finally ended in 1953, while the Occupation terminated in 1952, but the Japanese recovery continued, becoming a phenomenal (if irregular) economic expansion persisting unabated to the present date. Such a course of events would have seemed unbelievable in the distressed early postwar years, when only massive American aid prevented starvation in Japan.

Table 14 presents a number of statistical indicators of the unsatisfactory state of the economy in the early postwar years. For the reasons already cited, the last eight months of the war in 1945

¹Ibid., p. 84.

Table 14

JAPANESE ECONOMIC INDICATORS -- EARLY POSTWAR YEARS

Year	Index of industrial production ^a	Index of agricultural production ^b	Index of public utilities ^c	Real net national income (billion yen) ^d	Index of population ^e	Index of per capita production ^f
1944	179	na	154	15.4	105.5	170
1945	60	60	88	na	104.0	58
1946	31	77	109	8.2 ^e	105.6	29
1947	37	75	124	8.7 ^e	112.8	33
1948	55	86	138	10.2 ^e	115.9	47
1949	71	93	155	11.8 ^e	118.1	60
1950	84	99	168	13.9 ^e	120.2	70
1956	219	122	295	22.1	130.4	168

Notes:

na Indicates not available.

^a1934-36=100. Cohen, Postwar Economy, p. 47.^b1933-35=100. Allen, p. 192.^c1934-36=100. Cohen, Postwar Economy, p. 15.^dIn 1934-36 prices. Ibid., pp. 12-13. Average national income for 1934-36 was 14.4 billion yen.^eFiscal year.^f1934-36=100. Ibid., p. 47.

was a period of catastrophic economic decline, while the confusion attendant upon the inauguration of the Occupation can easily account for failure to show improvement in the remainder of 1945. But 1946 was, generally, still worse than 1945 despite cessation of bombing and blockade and release of resources from war activities.

The index of agricultural production on the 1934-36 base did rise from 60 in 1945 to 77 in 1946, but the index of industrial production fell from 60 to 31. From that low point a slow upswing began. Even by 1950, however, the index of industrial production was only 84 on the 1934-36 base, and there had been a 20 per cent increase in population in the interim. By 1956, industrial production had attained an index of 219, substantially over the wartime peak on an aggregate basis, and just about equalling the peak on a per capita basis after a 25 per cent population increase.

From a purely statistical point of view, it might be questioned whether we are really justified in regarding the progress to 1950 as unsatisfactory, while calling the post-1950 results a splendid performance. From the Industrial Production Index in Table 14, it might seem that there is a fairly continuous curve of economic expansion from the low point of 31 in the year 1946 to 84 in 1950 and 219 in 1956. Contrasting the results of the two periods is, however, well justified, for the following reasons. It is a far easier feat for an economy to recover to levels of production already achieved in the past than to attain new high ground; to a large degree, the former involves only putting existing capacity into production, but the latter requires heavy additional investment. This is especially the case when it is remembered that 100 on the index refers to the long-past depression period of 1934-36; even if we leave out of consideration the high wartime levels, industrial production indexes over 140 had been attained in Japan as far back as the year 1938. The results up to and including 1950 incorporate substantial amounts of U.S. aid

(see Table 15); however, by 1950 this had begun to taper off, and from 1952 on aid was not a factor.¹

The questions now to be explored are: what were the forces or frictions holding back the progress of the Japanese economy in the early postwar years; what shares of the blame can be assigned to the various adverse factors; and how did the forces of growth eventually gain ascendancy? Certain explanations of a technological nature could be put forward as hypotheses to explain the lagging postwar recovery. For example, it might be maintained that the war so impaired Japan's over-all capital stock in quality and quantity as to reduce, in a way difficult to remedy, her ability to produce. Another hypothesis would emphasize not the over-all level of the stock but specific disproportions and bottlenecks created by selective bombing and other war-related causes. A rigorous test of these hypotheses would take more time than could be allowed here, and only some impressionistic comments will be provided. It does not appear that the over-all resources available to the Japanese economy were reduced much as a result of the war, especially when the enlargement of human resources is offset against the limited decline in material capital stock. The argument involving disproportions is harder to dismiss; it might be argued, for example, that the increase in labor resources could not be used until after a slow process of industrial reconversion, filling of inventory pipelines, and the like. The author's impression is that this sort of consideration played a role in the immediate postsurrender period, but disproportions and bottlenecks should have disappeared rapidly in the absence of policy errors in the allocation of the society's available resources.

¹ A very convincing indicator of the difference between the two periods is the contrast between Cohen's two volumes on the Japanese economy. War and Reconstruction (1949) is more than gloomy in its conclusions as to the prospects for Japanese recovery (pp. 501-504), while nothing could be more ebullient than the discussion of "Japan's Amazing Recovery" (pp. 11-26) in Postwar Economy (1958).

The possible adverse factors to be considered in some detail are: (1) restrictive and punitive policies of SCAP; (2) social and political disorganization, possibly caused in part by SCAP reforms of Japanese government and society; and (3) the financial-monetary policy of repressed inflation. All three factors are organizational in nature (though from the point of view of Japanese decision-makers, the policies of SCAP were a kind of natural constraint not unlike a technological limitation).

In contrast with the pastoralization program adopted for Germany, limitations on production or consumption levels in effect as deliberate Occupation policy in Japan were relatively innocuous (the austere level of 1930-34 referred to earlier was supposed to be a minimum, with no maximum specified for Japanese per capita income). However, the program of extensive reparations laid down in the Pauley Report early in the period was, in fact, a pastoralization program for Japan. The report proposed removal of the bulk of Japan's steel capacity, three-quarters of shipbuilding, over three-quarters of machine-tool inventory, and all of aluminum and magnesium capacity (in addition, of course, to all war goods facilities). Production limitations were also recommended.¹ While this program was fierce enough (one consequence of its adoption would have been a sharp reduction in the population that could have been maintained on an economically viable basis in the Japanese islands), it was not actually put into effect. Nevertheless, there are indications that SCAP production-level limitations interfered with at least some branches of production,² and uncertainty about just what would be taken as reparations was definitely deleterious. SCAP gradually scaled down, and finally abandoned, the reparations program in 1947 and 1948, together with other elements of the "Reform-Punishment" philosophy. The main reason, at least in the case of reparations,

¹Cohen, War and Reconstruction, p. 420.

²Allen, p. 94.

was the obvious distress of the Japanese economy. The actual removals for reparations during the recovery period appear ultimately to have amounted to very little.¹ (In the years since 1950 Japan has voluntarily signed combined commercial and reparations agreements by which she has contracted to pay out huge sums to the various nations injured by Japanese imperialism in World War II. Apparently, the motive was largely to promote trade.)² Another burden on Japan is the debt owed to the United States for the costs of occupation and rehabilitation, in the amount of some \$2 billion.³ However, this was not a drain upon the Japanese economy during the recovery period considered.

A rather stronger case for the harmful effect of Occupation restrictions can be made in the crucial field of foreign trade. In this special field SCAP did not play a merely supervisory role; rather, SCAP directly controlled and monopolized all of Japan's external trade. Not until August 1947 were private foreign traders admitted to Japan, and not until August 1948 could Japanese exporters make direct contracts with foreign buyers.⁴

What the motives for such stringent controls may have been will be discussed shortly, but the results are all too clear (Table 15). Japan's foreign trade throughout the recovery period remained extremely low, and over half of imports through 1950 were financed by U.S. aid.⁵

¹Cohen, War and Reconstruction, pp. 421-26.

²The scale of the agreements signifies the recent strength of Japan's economy. The agreement with Indonesia in 1957, for example, provided for payments of reparations in the amount of \$225,000,000 over a period of years, cancellation of Indonesian trade debt to Japan in the amount of \$175,000,000, and Japanese loans and investments in Indonesia in the amount of \$400,000,000 (Cohen, Postwar Economy, p. 165).

³Ibid.

⁴Cohen, War and Reconstruction, p. 500.

⁵Aid amounted to over \$2 billion between 1945 and 1951 when it terminated (Allen, p. 165).

Table 15
INTERNATIONAL TRADE, POSTWAR JAPAN

Period	Index of volume of exports (1934-6=100) ^a	Index of volume of imports (1934-6=100) ^a	Export- import balance (million \$) ^b	U.S. aid ^b (million \$)	Special procure- ment (million \$) ^b
Sept. 1945- Dec. 1946	na	na	- 202	193	c
1947	na	na	- 352	404	c
1948	8	18	- 425	461	c
1949	16	28	- 395	535	c
1950	30	33	- 154	361	149
1956	73	103	- 729	0	595

Notes:

na Indicates not available.

^aAllen, p. 197.

^bCohen, Postwar Economy, p. 110. The export-import balance figures exclude "invisibles," but apparently Japan had also a deficit on invisibles during the period under consideration (Allen, p. 165).

^c"Special Procurement" did not begin until 1950.

It seems certain that the prohibition of private trading was an important adverse element in Japan's postwar foreign trade situation, but it was by no means the only source of difficulty. There is no clear evidence that SCAP had a deliberate policy to hold down trade. It appears instead that the restrictions on trade (like so much of economic policy during this period) constituted an erroneous set of measures from the point of view of recovery, but were not motivated to hold back recovery.¹ It has been suggested that a hold-down policy on trade existed, either to weaken Japan strategically or perhaps to gain some commercial advantages for nations that feared her export competition,² but the evidence does not support this interpretation. Furthermore, a number of other factors contributed to the poor progress of Japan's trade recovery. Among these were the decline in demand for silk, loss of the merchant marine, and legal changes in customer countries discriminating against or removing special privileges in favor of Japanese imports. However, probably more important than all of these was the general depression of production, largely due to the domestic policy of repressed inflation to be discussed below. It is shown in Table 15 that even by 1956 Japan's exports were well below the 1934-36 base period. Evidently, certain shifts in international trade patterns had led Japan to reduce her proportionate reliance upon foreign trade as a source of real income. One such change is visible in the "Special Procurement" column of the Table. This item represents, primarily, services to American military forces based in Japan. Special procurement provided Japan with an important source of

¹Of course, simple inefficiency played a role, too. Cohen remarks that while Japan had been largely strangled by blockade in the last months of the war, peace brought with it absolute cessation of foreign supplies for a considerable period while SCAP worked out the regulations and procedures to permit trade to be conducted at all (Cohen, War and Reconstruction, p. 418).

²In a Foreword to Cohen's War and Reconstruction, Sir George Sansom states that policy was originally to limit Japan's foreign trade, on a mixture of grounds: "partly political, partly strategic and partly competitive" (p. ix). However, the text does not bear out this contention, nor does it seem to be confirmed elsewhere.

foreign exchange that is accounted as an "invisible" rather than an export in the trade statistics. The general conclusion in this section is, then, that no very large share of the responsibility for the poor Japanese recovery to 1950 can be assigned to a deliberate Occupation policy of holding down the Japanese economy.

We turn now to the question of the possible effects upon the economy of social and political disorganization during the Occupation period. There was, of course, an organizational crisis between the surrender date and the time SCAP effectively asserted control. After August 15, 1945, it has been alleged,¹ Japanese disbursing officers improperly paid out huge amounts of government funds -- some 40 billion yen in the six weeks after surrender.² Government stocks were also appropriated by individuals and channeled into the black market. Impressed Korean and Chinese laborers left their jobs, creating difficulties in the coal mines. This crisis was terminated by the end of September, when SCAP's actions made it clear that the Occupation would maintain the legal system of Japan, would not expropriate property rights (with some exceptions), and would work to reform rather than destroy Japanese customs and establishments (particularly, the Emperor institution).

These conservative policies of SCAP contributed to the minimal restoration of confidence necessary to get the productive mechanism going again. Nevertheless, among the major goals of the Occupation were certain legal and social reforms that SCAP felt impelled to achieve, even if to some degree at the expense of Japanese recovery. The purge of militarists and of wealthy beneficiaries of Japan's expansionist policies (especially the elite clique of great financial and industrial families known as the Zaibatsu) was rigorously pursued, even though it stripped government and industry of a large

¹Cohen, War and Reconstruction, pp. 417-18.

²Cohen, Postwar Economy, p. 84.

fraction of their leading personnel. Deprivation of property and exclusion from public offices and important business positions were based primarily upon membership in certain social groupings (for example, career officers of the armed services, major officials of all large private corporations, relations of Zaibatsu families); proof of individual complicity in war guilt was not required.

Among the other economic reforms were antimonopoly and deconcentration legislation, and abolition of industry "control associations." These associations, which served in part as cartels, were also the agencies that determined the allocations of supplies and distribution of products for the various industries -- a necessary function since, under the policy of repressed inflation, the price mechanism was not working to guide the allocation of resources. Since the repressed-inflation policy was continued, the control associations had to be succeeded by newly organized "public corporations."¹ This led to charges that Zaibatsu monopolies were being replaced by State monopolies.² The final effect of the antimonopoly legislation may well have been highly favorable to the Japanese economy, and Occupation antitrust policy can perhaps be awarded some of the credit for Japan's competitive vigor in the 1950s. However, during the recovery period the problem of reorganizing much of Japanese industry caused a great deal of confusion and uncertainty, and very probably detracted from production.

Measures adopted in 1946 for a capital levy and for abolition of war damage indemnities combined reformist and fiscal motives. The capital levy brought in revenue of over 40 billion yen, while the indemnity abolition cancelled government obligations of some 90 billion yen.³ (For the fiscal significance of these totals, see Table 16.) The measures were considered to be important from the

¹Cohen, War and Reconstruction, p. 431.

²Ibid., p. 426. See also Allen, Economic Recovery, p. 139.

³Cohen, War and Reconstruction, p. 429.

reform point of view, because the highly progressive nature of the capital levy achieved a substantial levelling of the wealth structure.¹ Furthermore, the bulk of the war damage indemnities would have been paid to corporations and wealthy individuals. The cancellation of war damage indemnities was particularly disruptive in its effects, as a huge number of corporations thereby became insolvent. Little attention seems to have been paid to the problem of equity in regard to those individuals who were the unfortunate victims of Allied bombing, and whose legal claims for compensation from their fellow citizens were thereby cancelled.²

Another measure strongly pushed by SCAP was land reform. This was supposedly directed against great feudal land owners, a group believed to be an important element of Japan's militarist ruling class. Unfortunately, SCAP apparently was unaware of the fact that feudal land owners did not hold any substantial fraction of Japan's arable land,³ so that the effect was to extinguish a rural middle class by expropriation of even tiny holdings.⁴ Over 65 per cent of Japan's cultivated land was taken by the government, with only negligible compensation, under this program. The agricultural disruption must have been considerable, although the agricultural sector nevertheless performed better than the industrial sector up to 1950.

¹The capital levy rates rose to 90 per cent of the wealth in excess of 15 million yen (the yen at this time was fixed at 50 to the dollar). However, the progress of the inflation was so rapid that the real effect of the capital levy was considerably less than intended.

²However, a Non-war Sufferers' Special Tax was enacted in 1947 to redress the balance somewhat. See Henry Shavell, "Taxation Reform in Occupied Japan," National Tax Journal, I (1948), p. 139.

³Allen, Economic Recovery, p. 52.

⁴Absentee landlords were dispossessed completely; other landlords were permitted to retain only 1 chobu (2.5 acres) on the main islands. Owner-farmers could retain 3 chobu (*ibid.*, p. 57).

The final effect was to eliminate the great bulk of farm tenancies in Japan in favor of owner-operated farming, typically on a very small scale.¹

Another set of Occupation reforms achieved the abolition of the various labor control measures effective in Japan, introduced "fair labor standards" and protection of employment security, provided a system of unemployment insurance, and, most important, promoted the growth of trade unionism. Unions grew rapidly in numbers and in militancy under radical leadership. Seizure of plants by the unions became a serious problem in 1946. In 1947 SCAP intervened to stop a general strike and in 1948 had to prohibit strikes of government employees. Collective bargaining remained vigorous throughout the Occupation period, however.

Some comment on Communist activities during the Occupation is also called for.² The political atmosphere in 1945 and 1946 was, of course, very different from that today; it seems hard to credit that SCAP did not merely legalize the Communist party but for some time looked benignly upon Communist activity as a counterweight to the reactionary forces the Occupation sought to crush. The Communist Party in Japan in 1945 and 1946 posed as a moderate and non-violent organization, a true friend of Occupation principles, and it had on that basis considerable influence in some SCAP circles. With the purge of reactionaries and militarists from all branches of Japanese public life, vacancies in positions of leadership and influence in universities, trade unions, newspapers and radio, and

¹In order to prevent a recurrence of landlordism, it was specified that the land so acquired could not be resold for thirty years except with official permission. Such a provision, tying the farmer to the land, is certainly reminiscent of the feudalism the program was designed to attack. It also interferes with efficiency by making it difficult for the farmer to obtain credit, since land cannot be pledged as security.

²This discussion is based upon Harry E. Wildes, Typhoon in Tokyo (New York: Macmillan, 1954), pp. 269-316.

so forth, were created, and these were often filled by Communists. However, the hardening of the cold war led to increasing incompatibility between the Communist line and Occupation policy, and the resort of the Communists to direct action (sabotage and violence) on the political and labor fronts finally elicited strong SCAP action. As a result, a "Red purge" in 1949 and 1950 followed the "reactionary purge" of 1945 and 1946. In the early postwar years, however, the internal communist threat may have been (though not so recognized by SCAP) an important source of social instability from the point of view of Japanese investors.

To summarize this section on social and political disorganization, economic progress in an economy in which private enterprise plays an important role requires assurance that property rights will be protected. No one will be motivated to save or invest or perform on contracts unless he has reasonable confidence that he will not be deprived of his right to the yield of such activities. The various reform measures reviewed here were considered by SCAP to be justified as essential elements of a plan to change the social structure of Japan so as to prevent a militarist revival. Some adverse effect upon production was probably anticipated, as a cost of making the necessary changes. Just how great the adverse effects may have been is rather difficult to say; it seems reasonable to consider them of significant magnitude, in such a period of thoroughgoing political and economic turmoil. One could hardly deny that confidence in social stability and in property rights was at a low ebb in Japan during the Occupation period up to 1950. However, the worst from this point of view came relatively early, in 1946. After that time, the legal and political background for private economic activity substantially improved. Since the over-all performance of the economy remained highly unsatisfactory, it seems likely that other factors must be given the major weight.

We have seen that the Japanese war economy was financed by the technique of repressed inflation, leading by the end of the war to

something like a 5-fold increase in note issue, 3 1/2-fold increase in over-all money supply, and also around a 3-fold increase in the real price level (that is, the price level calculated to include black market transactions). The Occupation administration continued the same type of financial-monetary policy in the postwar period (or, rather, permitted the postwar Japanese governments to pursue this policy). As Table 16 suggests, Japan's lack of success with repressed inflation was more evident in the postwar period, undoubtedly because of growing unwillingness of the public to hold a depreciating currency. Although it is difficult to find mutually consistent data for the wartime and postwar periods, it appears to be roughly the case that the price level rose around 50-fold in the postwar period up to 1950 as compared with only a tripling in the wartime period. Furthermore, postwar results are in spite of the currency conversion of March 1946, which reduced the currency from 62 billion to 15 billion and free bank deposits from 128 to 13 billion.¹ Allowing for this revaluation, a better estimate would be a 200-fold price rise in the postwar era.

The engine of inflation in the postwar period was the heavy government deficit, financed by currency expansion and central bank credit. A second factor was lavish credit extended in the form of loans to industry by a government agency, the Reconstruction Finance Bank (and its predecessors).² Since these loans were at low interest rates in a period of rocketing prices, the fortunate borrowers were relieved of the necessity of repaying more than a fraction of real value; hence, "reconstruction loans" proved to be very popular.³ They were financed by advances from the Bank of Japan, and thus led directly to increases in the money supply. The government's deficit

¹ Cohen, War and Reconstruction, p. 455.

² Ibid., p. 449.

³ Debentures of the RFB, which began operations in January of 1947, rose to 131 billion yen by March 1949 (Cohen, Postwar Economy, p. 85).

Table 16

MONETARY AND FINANCIAL STATISTICS, POSTWAR JAPAN

Year	Budget deficit, fiscal year (billions of yen) ^a	National debt (billions of yen) ^b	Note issue (billions of yen) ^c	Total money supply (billions of yen) ^d	Wholesale price index (1934-36 = 1) ^e
1941	13.4	31	6	na	na
1945	76.6	151	55	140 ⁱ (Dec.)	3.5
1946	65	178	93 ^h	309 ^h (Mar.)	na
1947	103	na	219	390 (Mar.)	na
1948	166	446 ^g	355	646 (Mar.)	na
1949	62 ^f	531 ^g	355	787 ^j	209
1950	+125 (surplus)	316 ^g	422	na	247
1956	na	na	785	na	358

Notes:

na Indicates not available.

^aCohen, War and Reconstruction, pp. 450-451; Postwar Economy, pp. 84, 87. Fiscal year begins in April of same calendar year.

^bMarch 31 of calendar year (end of previous fiscal year). See Table 13 and Cohen, Postwar Economy, pp. 84, 87.

^cCohen, War and Reconstruction, p. 448; Postwar Economy, pp. 84, 91. S. Shiomi, p. 4. Figures for end of calendar years.

^dNote issue plus adjusted demand deposits. Compiled from various sources.

^eCohen, Postwar Economy, p. 92 (figures for March).

^fIbid., p. 87. This figure is reported for 1948, apparently in error.

^gMid-year figures.

^hAfter currency reform.

ⁱCohen, Postwar Economy, p. 84, has 140 billion here, apparently in error.

^jBeginning of year.

was achieved despite certain extraordinary deflationary factors, such as the termination of military expenditures, the cancellation of war damage indemnities, and the capital levy. The currency reform had no lasting effect because the sources of the inflation continued unabated. Subsidies to industry, to hold down consumer end-product prices, were a major expenditure.¹ Only around 20 per cent of budget expenditures were covered by taxation.²

Unlike inflations due to overriding causes such as war destruction or support of a tremendous military effort, this postwar Japanese inflation seems to have been almost entirely the result of deliberate but erroneous policy.³ The inflation was quite suddenly terminated in 1949-50 when the recommendations of the Dodge mission were put into effect. Subsidies were sharply reduced and the budget so heavily overbalanced that 25 per cent of the accumulated internal debt was retired. The Reconstruction Finance Bank's operations were severely curtailed. At the same time stock exchanges were reopened, and the government corporations responsible for supply allocations were eliminated. Export trade was freed from the complex and inefficient system of multiple exchange rates, and the new rate was fixed at the realistic level of 360 yen to the dollar. The note issue fell slightly, and the consumer price index fell around 15 per cent from its 1945 peak by mid-1950.⁴ (As it happened, the

¹In the 1949-50 fiscal year, they accounted for 202 billion of a total expenditure of 704 billion yen (Cohen, Postwar Economy, p. 86). Occupation costs were also a large budget item -- it is not clear whether or not these costs were fully balanced by corresponding U.S. credits, though we know that Japan accumulated a \$2 billion debt because of Occupation costs.

²Cohen, War and Reconstruction, p. 451.

³The following statement by Ishibashi, one of the early Finance Ministers, exemplifies the reasoning employed: "The advance of commodity prices is caused more by the decrease of commodities than by the expansion of currency. Therefore, relief must be sought more in the increase of goods than in curtailing the amount of currency, and for that reason an expansion policy becomes more necessary than retrenchment." From "Danger of Retrenchment Policy," Zaisei, Tokyo (Dec. 1945), as quoted in Cohen, War and Reconstruction, p. 450.

⁴Cohen, Postwar Economy, p. 88.

Korean War beginning in June 1950 led to a renewed inflationary development in Japan. However, this latter inflation was relatively mild and was an accompaniment of a Japanese boom rather than of economic stagnation.)

During the earlier postwar inflationary period, SCAP and the Japanese authorities were continually trying to "hold the line" against price increases by the familiar devices of price controls, rationing, and subsidies. Although legal ceilings were frequently raised, they were continually lagging behind costs, and an extensive black market accounted for a very large fraction of sales.¹ The government continued to acquire commodities by the wartime technique of compulsory deliveries at low fixed prices, but, fortunately, did allow premium prices to farmers, in particular, for above-quota production. Even so, substantial diversions to the black market occurred. To the extent that relief was not granted through one legal device or another -- a raised ceiling, a premium for over-quota delivery, a production subsidy, or a reconstruction loan -- the only alternatives were the black market or barter. All of these "solutions" detract substantially from economic efficiency, and any attempt to close the loopholes and rigorously enforce price controls is liable to break down the division of labor and paralyze trade entirely. The familiar disaster phenomenon of trekking to the countryside to barter for food also took place in postwar Japan, and the fact that agricultural output recovered faster than industrial suggests that at least a relative shift of population from the cities took place. The partial breakdown in the division of labor, and the diversion of production and exchange into devious and inefficient channels to evade the price control and allocation mechanisms, both due ultimately to the repressed-inflation policy, seem to have been the major causes of the unsatisfactory recovery up to 1950.

¹About one-third to one-half of the 1946 national income was believed to have been transacted on the black market (Shavell, p. 129).

Why was such a catastrophic economic policy not reversed earlier? One reason was simple ignorance; the policy of repressed inflation was more or less standard procedure everywhere during and after World War II. The examples of some of the European countries that succeeded in mastering their postwar inflations by the use of orthodox fiscal and monetary policies were not immediately appreciated elsewhere. The turning point, perhaps, was the German "miracle" of mid-1948, to be discussed in the next section. Here the analogy to the Japanese situation was so close that it could not have been missed by either SCAP or the Japanese authorities. We may remark, however, that there were some groups who were definite beneficiaries of the repressed-inflation policies. Prosperity among the farmers was proverbial, because of elimination of the real value of their debts, together with ability to dispose of produce via barter or black market. Black market operators were also an obvious category of beneficiaries. Perhaps most significant for Japanese policy was a group well hidden from public opprobrium: beneficiaries of "reconstruction loans" from the government financial institutions, recipients of production subsidies, and those so placed with the materials-control agencies as to receive favorable allocations of scarce supplies through low price legal channels. In the aggregate, these undoubtedly comprised an important interest group with a stake in the repressed-inflation system.

VI. GERMANY'S RECOVERY FROM COLLAPSE, 1945-1948¹

Germany's war effort was financed by the technique of repressed inflation, as were the war efforts of Japan, Britain, and the United States. The main features were easy credit and deficit financing on the fiscal level, priorities and allocation systems for controlling the distribution of resources to industry, and rationing and price controls on the consumer level. The priorities and allocation system developed slowly; as in Japan, the military resisted systematic central control.² The consumer control system is generally considered to have worked well; black markets were minor during the war.³

The aspect of the German war economy most commented upon by postwar observers was the failure of the Germans to mount an all-out effort on the industrial front until much too late in the war.⁴ Surprisingly (in view of the early German military victories), Hitler did not have a quantitatively enormous war machine at the beginning of the war; furthermore, on the basis of successes on the Russian front, demobilization of war industries was actually begun in 1941, and considered again in 1942. The employment of women was discouraged

¹The main sources employed were Harold Zink, The United States in Germany 1944-1955 (Toronto, Canada: Van Nostrand, 1957); Lucius D. Clay, Decision in Germany (Garden City, New Jersey: Doubleday, 1950); H. C. Wallich, Mainsprings of the German Revival (New Haven: Yale University Press, 1955); Horst Mendelshausen, Two Postwar Recoveries of the German Economy (Amsterdam: North-Holland Publishing Co., 1955), and "Prices, Money and the Distribution of Goods in Post-war Germany," American Economic Review, XXXIX, 646-672; B. H. Klein, Germany's Economic Preparations for War (Cambridge: Harvard University Press, 1959); United States Strategic Bombing Survey, The Effects of Strategic Bombing on the German War Economy (1945); and Manuel Gottlieb, The German Peace Settlement and the Berlin Crisis (New York: Paine-Whitman Publishers, 1960).

²Klein, pp. 156-157.

³Wallich, p. 64. Of course, this is not a fully satisfactory criterion of a successful control system. Ruthless suppression of black markets may well be associated with paralysis of legal trade as well.

⁴Klein, pp. 173-205.

throughout the war as contrary to National Socialist "ideals." Only at the end of 1942 did the magnitude of the industrial output required for Nazi survival, not to mention victory, become appreciated. After that point, a substantial expansion of industrial output, and of munitions production in particular, was achieved (see Table 17). In the face of an increasing scale of air attack and adverse shifts of the fighting fronts this was an impressive performance, but it was fatally limited by the failure to expand basic capacity earlier, when the opportunity existed.

It is rather difficult to divide the responsibility for the German economic breakdown between the two major sources of stress: air attack and loss of territory. Bombing became important in 1943; the attacks upon oil and transportation were particularly damaging. Allied military conquests first cut off regions supplying raw materials and some manufactured products to German industry, and of course eventually overran the German national territory itself. It is evident, though, that the collapse was entirely ascribable to these technological pressures and not to any endogenous breakdown of the social mechanism.

In the wake of their victorious armies the Allies found a collapsed German economy. On a national basis the postal, telephone, and telegraph services had stopped in 1945, and in many areas even the vital utilities -- power, gas, and water -- were not in service. Transportation had generally stopped, and with it practically all industrial production.¹ The whole system of division of labor seemed to be completely broken. The economic paralysis was greater than that in Japan, for a number of reasons. First of all, in Japan there was no battlefield damage in the home islands, and no scorched-earth policy like that carried out by the Nazis under

¹The rate of industrial production in the American zone from May through December 1945 was estimated at 5 per cent of normal. Zink, p. 254.

Table 17
GERMAN INDUSTRIAL AND MUNITIONS PRODUCTION,
WORLD WAR II

Year	Industrial production and con- struction (1939=100) ^a	Munitions production (1939=100)
1939	100	100 ^b
1940	106	145 ^b
1941	117	146 ^b
1942	118	193 ^b
1943	132	302 ^c
1944	133	376
1945	na	197 ^d

Notes:

na Indicates not available.

^aUSSBS, German War Economy, p. 27.

^bKlein, p. 97.

^cMunitions figures for 1943 and later from USSBS, German War Economy, p. 275. Linked to Klein's series by multiplying by ratio 193/142.

^dMarch -- last figure available.

Hitler's "Nero plan."¹ Though impressed Korean and Chinese laborers did pose some difficulty in Japan, the effect was minor compared to the problems created in Germany by some 4 1/2 million liberated displaced persons and 2 million prisoners of war,² plus Germans fleeing from the Russian zone or expelled from eastern Europe. Perhaps most crucial of all, government had collapsed almost everywhere. Nazi officials deserted their posts with the retreating German armies, and the Allies repudiated the entire government apparatus (including ordinary civil servants) as hopelessly Nazi dominated.

In Allied planning before final victory, no preparations had been made for restoration of a collapsed German economy. Rather, attention had been directed almost exclusively to the problem of keeping postwar Germany disarmed, economically weak, and free of Nazi resurgence. In fact, under the famous directive JCS/1067 to the American Commander, general assistance to the economy was forbidden. However, the directive provided a loophole. To the minimum extent necessary to avoid starvation, disease, and unrest, the Commander was directed to facilitate the restoration of transportation and utilities, repair and construction of minimum shelter for the civilian population, and the production of coal and other civilian goods.³ In practice, assistance during the emergency period had to be provided on a substantial scale to get the wheels of the economic mechanism moving again so as to prevent mass starvation. Aid was crucial in restoring communications and transportation, but perhaps even more important was the lead taken by the Occupation forces in

¹Eugene Davidson, The Death and Life of Germany (New York: Knopf, 1959), p. 51.

²Ibid., p. 53. A substantial fraction of these could not or would not return to their country of origin. One of the most cruel features of the period was the forced repatriation of Russian and east European nationals.

³See text of JCS/1067 in Carl J. Friedrich and Associates, American Experiences in Military Government in World War II (New York: Rinehart, 1948), pp. 385-395.

preserving civil order and restoring the functioning of government. As in Japan, property rights (in the Western zones) were generally respected, except, of course, for confiscation of properties of National Socialist institutions and of leading Nazis, and restitution of looted properties of Allied citizens and persecutees. Banks were permitted to reopen on an individual, local basis in the American zone; confidence had been restored to such an extent that by early 1946 deposits exceeded withdrawals.¹

When the extreme crisis of this interregnum period was overcome with the aid of the military conquerors, the German economy in the Western zones faced longer run problems. Housing was particularly bad; the effects of war destruction were aggravated by the inflow of millions of refugees and expellees. As late as 1950, one-fourth of all West German families had no regular homes; they were either sharing quarters or living under emergency shelter conditions.² However, once the rubble was cleared away industrial war damage proved to be much less than originally believed. It was estimated at about 20 per cent of prewar capacity.³ Food was an even more urgent problem than housing because the Western zones were cut off from former food-supplying areas in eastern Germany. Until 1948, in fact, economic planning in Germany was dominated by the hand-to-mouth problem of finding sufficient food to prevent starvation. Another overriding shortage was of coal because of the loss of the Silesian and Saarland supplies. As in Japan, there were potentially offsetting factors on the positive side: again, the most important were the elimination of any need to support a huge war effort (though Occupation costs had to be met), and the reopening of world trade.

¹Clay, p. 203. General Clay remarks that this indicated a degree of "public confidence perhaps not warranted by the facts." Most of these deposits were wiped out in the currency reform of 1948.

²Wallich, pp. 171-172.

³Zink, p. 253.

Despite these favorable factors recovery was painfully slow until the currency reform "miracle" of June 1948. Table 18 presents some suggestive data. Perhaps a better impression of the distressed state of the economy is the tabulation of General Clay's remarks on the food ration during this period (Table 19). Throughout this period the ration goal, set on a fairly spartan level to correspond with general policy on the German standard of living, remained at 1990 calories per day. It was estimated that perhaps 200 calories, on the average, were obtained by German consumers from black market or other unaccounted sources,¹ but in the absence of clearer evidence of mass starvation, it seems that greater amounts must have been so obtained.² Until the excellent 1948 harvest, it should be mentioned, such distribution as was attained depended upon external aid -- the commitment of SHAEF's 600,000-ton grain reserve in 1945/46, and some millions of tons of later relief imports.

A number of competing hypotheses can be put forward as to the sources of the lagging German economy before the mid-1948 currency reform which initiated the postwar boom. There are possible technological explanations in terms of wartime aggregate destruction of capital, or, alternatively, selective and disproportionate destruction leading to bottlenecks. The importance of these hypotheses warrants fuller and more detailed explanation than there is space for here. The impressionistic comment, made earlier with reference to Japan, can be repeated: the over-all level of destruction does not seem to have been sufficient to lead to the observed economic stagnation in the German case either, and selective bottlenecks should have yielded to an appropriate application of resources after only a

¹Clay, p. 266.

²An interesting technique, used to estimate the degree of general malnutrition, was the employment of teams to stop Germans in the street for random weighings.

Table 18
PRODUCTION IN POSTWAR GERMANY
(Federal Republic area)

Year	Food production (1935-39=100) ^a	Industrial production (1938=100) ^b	Population (1938=100) ^c	Industrial production per capita (1938=100)
1946	67	29	111.0	26
1947	58	33	112.9	29
1948	79	52 ^d	115.9	45
1949	93	74	118.3	63
1953	118	132	123.4	107
1958	na	199 ^e	131.0	152

Notes:

na Indicates not available.

^aMendershausen, Two Postwar Recoveries, p. 8. Data in source are shown for crop years (e.g., 1946/47), believed to correspond approximately to calendar years shown.

^bIbid., p. 6. Bizonal area to 1948.

^cStatistisches Jahrbuch für die Bundesrepublik Deutschland, 1961, p. 36.

^dFirst half of 1948 (prior to currency reform), 45; second half, 59.

^e1958 figure from United Nations, Patterns of Industrial Growth 1938-1958, p. 247, linked to 1953 index in table.

Table 19

FOOD RATIONING IN POSTWAR GERMANY

(General Clay's comments)

Date	Remark
July 1945	U.S. Zone ration set at 950 to 1150 calories. Only 950 distributed.
August 1945	Official ration set at 1550 calories. Not met.
Winter 1945/46	1550 calorie ration met for a few months.
February 1946	Downward trend resumed.
May-June 1946	Low point, 1180 calories.
End of June 1946	Increase to 1225 calories.
October 1946	1550 calorie ration met.
January 1947	Fusion of British and U.S. zones prevents maintenance of 1550 calorie ration.
April 1947	Authorized allowance dropped to 1040 calories.
June 1947	Ration started upward again.
April 1948	1550 calorie allowance met.
July 1948	Ration set at recommended 1990 calorie level.

Source:

Clay, pp. 263-270.

relatively short delay.¹ On the organizational side, three categories of forces paralleling those considered in Japan will be distinguished: restrictive or punitive policies of the Occupying powers; social and political disorganization, possibly caused partly by reformist or other Occupation policies; and the monetary-fiscal policy of repressed inflation. One factor appears in Germany that did not appear in Japan -- the zonal division. From the point of view of the West Germans, restrictive Occupation policies (and the zonal division) were effectively technological constraints outside of their ability to modify. ~~From the point of view of the Occupation authorities, however, at least some of these constraints were capable of modification as a policy matter.~~

The first factor to be considered is the deliberate Allied policy of holding down the German economy. The initial U.S. intention was to "pastoralize" Germany, under the policy most strongly advocated by Treasury Secretary Morgenthau.² British assent to this policy was, apparently, obtained at the second Quebec conference in September 1944.³ The Morgenthau plan set the tone of JCS/1067, the directive to the American Commander, though the Potsdam protocol of August 1945 (agreed upon by the Occupying powers, excluding France)

¹One example will have to suffice on this point. General Clay makes repeated reference to the interdependent coal and food problems: it was difficult to keep men working and productive in the coal mines when they lacked food, while lack of coal hindered transportation and industrial activities essential for maintaining food output. However, it is doubtful that the vicious circle was technological in origin. In postwar Germany there were many essentially unemployed laborers who could have been attracted to the coal mines by a higher real wage. It was the effective abandonment of the money-wage mechanism, with rationing of all important consumer goods, that made it impossible to offer a higher real wage to recruit coal miners (and the low fixed product price for coal largely eliminated any incentive toward unusual efforts on the part of the coal firms).

²Dale Clark, "Conflicts over Planning at Staff Headquarters," in Friedrich, pp. 220-231.

³Clay, p. 11.

was somewhat more moderate.¹ In general, the British were in favor of a moderate policy on level-of-industry and economic restrictions, while the French were perhaps more extreme than the Americans. Under the Potsdam formula, all capital equipment in Germany in excess of the amount judged necessary to maintain a standard of living not greater than the average level of other European nations (excluding Great Britain and Russia) was to be dismantled and made available for reparations.² The Potsdam Agreement fixed 55 per cent as the maximum level for permitted German production in relation to 1938 output, exclusive of war production in 1938. Steel was to be limited to about 30 per cent of prewar, machine tools 10 per cent, chemicals 40 per cent, textiles 75 per cent, and so forth, while a number of industries were prohibited completely, including aircraft, ball bearings, shipbuilding, munitions, and synthetic oil.³ In late 1945 four-power agreement was obtained on all-German steel production: an output of 5,800,000 tons and capacity of 7,500,000 tons,⁴ compared with prewar capacity of some 22,000,000 tons.⁵

Whatever one thinks of the wisdom of this "Carthaginian peace" policy, it does not appear that the slowness of the recovery can be attributed to it in any great degree. The observed economic performance was, in general, far below the intended economic limitations throughout the period. Furthermore, the limitations themselves were successively relaxed, usually well before they constituted any brake upon production. In the case of steel, for example, in 1947 after the abandonment of four-power negotiations, bizonal limitations were fixed at 10,700,000 tons of production and capacity of 13,000,000 tons.⁶

¹Ibid., pp. 41-42.

²Clay, pp. 108-109.

³Zink, p. 258.

⁴Clay, p. 108.

⁵Klein, p. 115.

⁶Clay, p. 322.

Punitive measures other than level-of-industry controls included dismantling for reparations, confiscation of the German merchant marine and of all external assets including patents, and the retention of German prisoners of war as forced laborers. The program of dismantling, initially envisaged on an enormous scale to correspond with the level-of-industry restrictions, was successively cut back. Although there was some impact upon production, the pace of dismantling was so slow and the levels of actual production before the currency reform so low, that adverse effects were not suffered until after the 1948 reforms (when the vigorously expanding economy began to utilize all the capacity available). One estimate places the cost of the program to Germany at around 2 billion Deutsche marks,¹ perhaps \$400,000,000. The confiscation of external assets for the purpose of reparations may have amounted to around 1 billion dollars,² to which should be added the value of some 1.4 million tons of shipping seized.³ The number of German prisoners of war retained as forced labor amounted to perhaps 1,000,000 in the West (primarily in France and England), and 3,000,000 in the East.⁴ The Western countries did not free all their prisoners until the end of 1948; perhaps half of those taken by Russia never returned. Quite aside from the humane aspects of the question, the loss of this labor force was undoubtedly serious to the German economy. The postwar German population had an extremely unbalanced distribution with respect to the proportion fit for work even without this further distortion. However, given the unsatisfactory functioning of the economy, it is questionable how large a fraction of the prisoners could have been

¹Wallich, p. 370. The total number of plants in the Western zones finally removed was around 700, compared with original plans to dismantle some 1500.

²Ibid., p. 359.

³Gustav Stolper, German Realities (New York: Reynal and Hitchcock, 1948), p. 85..

⁴Davidson, pp. 166 ff.

..successfully integrated into productive employments during the prereform period.

Another drain upon the German economy that bears mentioning is Occupation costs. In the early years of the Occupation this category accounted for around 40 per cent of all budgeted government expenditure, representing perhaps 15 per cent of the low gross national product of those years.¹ After the reform, the annual levy was set at 7.2 billion DMark, still a very substantial sum.²

In the aggregate, these various penalties did amount to a very substantial burden upon the German economy. However, they were counteracted by two positive factors: first, the relaxation of the most severe constraints (especially level-of-industry controls and dismantling) before they became very limiting, and second, Allied aid to the German economy. The motives for the gradual easing of Allied policy are, of course, generally familiar. Politically, the continual worsening of relations with the Soviet Union led eventually to the formation of the NATO alliance with German participation. Discussions on the creation of a German army did not begin until 1951, though attitudes were shifting long before. However, in the 1945-48 period it appears that the economic motive predominated in the policy shift. It was gradually brought home, first to the Occupation authorities on the spot and with some delay to top policy-makers in Washington and other capitals, that Germany could not be pastoralized without mass starvation or assignment to a permanent dole. Germany simply could not feed itself as an agricultural nation; it could only live by producing and exporting manufactured products in a complex division of labor with the rest of the world.

¹Mable Newcomer, "War and Postwar Developments in the German Tax System," National Tax Journal, v. 1 (March 1948), pp. 1-2. Gottlieb estimates the drain at about 10 per cent of over-all industrial output in the bizonal area, and at over 25 per cent of social product for the Soviet and French zones (Gottlieb, p. 69).

²Wallich, p. 361. Wallich points out, however, that the Occupation levy may be regarded as a rather cheap substitute for German defense expenditure.

Also, it was slowly realized that the German economic morass was holding back recovery in the rest of the world. Not only did the drain on American and British taxpayers limit the assistance these nations could provide to other countries, but Europe as a whole was hindered by the lack of German nonpastoral products¹ such as coal, steel, chemicals, and machinery, as well as products of German consumer industries. The formal recognition of the need for German recovery as part of a revived European economy came in late 1947 with the announcement that Germany would participate in the Marshall Plan.

Returning to the question of the role of deliberate Allied policy in holding down recovery, the negative effects of that policy must be weighed against the positive contributions of Allied assistance under the "avert disease and unrest" formula. The role of the Occupying forces in restoring communications, transportation, and utilities during the immediate postsurrender crisis period has already been mentioned. This role involved not only direction and organization, but also material aid; for example, 25,000 U.S. railway cars were brought into Germany.¹ After the passage of the crisis, Occupation economic policy was dominated by the overriding problem of food, and most assistance was provided in this form. Marshall Plan aid in support of the general economy did not arrive, however, until after the currency reform.² The relief programs designed to "avert disease and unrest" totalled some \$2.5 billions, though not all of this arrived in the prereform period; assistance under the European Recovery Program and its successors, all coming after the reform, amounted to around \$2 billion more.³ The magnitude of these contributions weighs heavily against the negative effects of other Occupation policies.

¹Clay, p. 188.

²*Ibid.*, p. 216.

³Wallich, pp. 355-357. See also Zink, p. 263.

As in the case of Japan, the Occupation control of foreign trade was especially rigorous. All foreign trade was monopolized by the Occupation authorities, and Germans were not permitted even personal commercial contacts with foreigners. During the early period, perhaps two-thirds of imports were aid-financed (see Table 20). In view of the levels later attained, one can certainly say that in the prereform period foreign trade was paralyzed.¹ There is no reason to believe that the Occupation authorities were deliberately trying to strangle German trade for competitive or strategic reasons. Rather, the main deterrent to exports was the same system of multiple exchange rates linked with price controls that largely eliminated incentives to export in Japan. As General Clay explains, "Military Government could not let German products be sold below world market prices without arousing justified resentment."² Accordingly, products that were cheap in Germany, such as china, were sold for foreign currencies at high "world market prices," but remittance was then made to the German producer at a steeply unfavorable exchange rate to correspond with the low internal ceiling price. Commodities whose internal prices were high were, correspondingly, awarded a favorable exchange rate. Imports were valued only at their internal ceiling prices, so that a manufacturer receiving an import allocation "got very high value for his mark."³

Despite the best of intentions on the part of Occupation authorities, this system failed. It seems evident that the system neatly cancelled out the incentives for German producers to sell abroad, especially for logical export commodities that could be produced cheaply in Germany. Producers receiving only the internal

¹"Foreign trade had practically ceased and come to be replaced largely by the intake of foreign relief and the outgo of foreign levies." Mendershausen, "Prices, Money, and Goods," p. 646.

²Clay, p. 197.

³Ibid., p. 198.

Table 20
POSTWAR BALANCE OF PAYMENTS, WEST GERMANY
(millions of dollars)

Year ^a	Exports	Imports	Services (net)	Current account balance	Foreign aid
1945	na	na	na	na	64 ^c
1946	160 ^b	na	na	na	468 ^c
1947	320 ^d	825	10	-495	611
1948	645	1,585	45	-895	1,059
1949	1,136	2,247	93	-1,018	861
1950	1,985	2,543	-49	-607	491
1954	5,271	4,278	-160	+833	69

Notes:

na Indicates not available.

^aFigures for 1947 and 1948 from A. K. Cairncross, "The Economic Recovery of Western Germany," Lloyds Bank Review (October 1951), p. 28. Later data from Wallich, p. 238.

^bZink, p. 256. American and British zones only.

^cWallich, p. 66. Figures refer to aid-financed imports, and exclude direct aid by military units.

^dThis appears in conflict with the figure of \$225 million (American and British zones only) in Clay, p. 173.

ceiling price in any case, preferred to sell on the domestic market where various "gray market" tricks provided some possibility of return in excess of the unrealistic legal ceilings. And, at the same time, the control system subsidized imports. But the policy was a mistake rather than a diabolical plot; it was a natural concomitant of internal price ceilings, since with a single rate producers of commodities with low internal prices would be under strong incentives to ship all their output abroad.¹ It may be mentioned that a large fraction of German exports in this period was in the form of coal, badly needed to support revival of industry in Germany itself. The coal exports were compulsory rather than commercial in nature, and the price received was only about half of the world market price.²

Social and political disorganization represents a possible alternative explanation of unsatisfactory economic performance. It is plain that there was in fact an organizational crisis in Germany during the transition period after Nazi collapse. However, after the assumption of power by the Occupation authorities, law and order were firmly established, and property rights were not endangered (in the Western zones) except under the legal procedures set under way for restitution, denazification, and so on. Perhaps because of the all too obvious lesson provided by East Germany, Communism won little support in the Western zones and did not constitute a considerable threat after the interregnum period. In these circumstances, while the zonal divisions were important economically because of the hindrance to trade, the lack of a central German government does not seem to have created anything like a crisis of confidence.

¹In some circumstances multiple exchange rates may represent an efficient way for a country to reap extra advantages from international trade. The difficulty here lay in the link between the exchange rate system and the internal price ceilings.

²Wallich, p. 362. A similar situation existed with respect to timber exports (Gottlieb, p. 68).

The denazification and decartelization policies of the Occupation authorities have been accused of disorganizing the productive powers of the economy. Denazification was a major program in the American zone: over 930,000 individuals were tried, 500,000 were fined, and some 122,000 were restricted in employment. Also, some 74,000 individuals were interned for up to three years, and of these around 39,000 were sentenced in addition to prison or special labor.¹ The most serious economic effect lay in the employment restrictions handed down either by Occupation edict or by denazification proceedings; for some time almost all important industrial executives were assumed to share the Nazi guilt, and could work only as common laborers. The German economy was undoubtedly deprived of the services of some efficient executives under these provisions, but it seems difficult to believe that the over-all effect was very great. It might be added that denazification was much less stringent in the other zones, and the U.S. zone did not contain the major industrial centers of Germany.

The program for decartelization and deconcentration of industry was designed to prevent concentrations of economic power believed to be partially responsible for German aggression. Again, this was a policy embraced more enthusiastically in the American than in the other zones. Cartels in Germany were, in fact, completely ineffective in the period considered here, and it would therefore be difficult to argue that dissolution of such market-sharing organizations interfered with production. The deconcentration policy, on the other hand, involved the break-up of productive organizations. Such dissolution did promote competition, but the attendant confusion may have had an adverse economic effect. At one point, General Clay prevented the dissolution of a German firm that was a principal supplier of locomotives, in the belief that the urgency of transport needs made it inadvisable to subject this firm to reorganization

¹Clay, pp. 260-261.

proceedings.¹ Here again it should be remembered that the more extreme American policies on deconcentration did not apply in the British zone, which contained the bulk of the great German industry.

Certainly more important than either the punitive or the reformist policies² described above were the economic consequences of the division of Germany into four Occupation zones superimposed upon the loss of eastern territories to Poland and Russia and of the Saar to France. From the time of surrender on, trade of the Western zones with East Germany and with eastern Europe in general was practically stopped.

Furthermore, the economic merger of even the Western zones was slow and halting. At first, indeed, trade was controlled at the county level and often stopped there, though intrazonal trade was freed before very long. But in May 1946 General Clay reported that all four zones had tight boundaries closed to commodities, persons, and ideas.³ Economic merger of the British and American zones was agreed upon in July 1946 and became effective soon thereafter. It was particularly vital because the British zone had the Ruhr's heavy industry, while the American zone had finished-products assembly and some food production. The French zone, however, remained separate until the currency reform of July 1948. Although it is difficult to adduce evidence showing quantitatively how significant the zonal divisions and the loss of trade with eastern Europe were in hampering German recovery, the effect must have been very substantial. In addition to the transitional problems faced by firms in finding new suppliers and customers, trading channels, and the like, there was a permanent loss due to the inferior economic solutions arrived at after the disruption of previously existing trading relations.

¹Clay, p. 330.

²A land reform program was also carried out in the American zone. Its effects were minor, inasmuch as the agriculture of the zone, to begin with, was practically free of large-scale farming.

³Clay, p. 73.

As a cause of the desperate lag in production during the pre-reform period, however, even the zonal division and the break-off of trade with eastern Europe must yield first place to the policy of repressed inflation. As a result of the monetary and fiscal policies pursued by the National Socialist regime, when peace came the economy was saturated with liquid funds in the hands of the public (currency hoards, Reich debt, bank accounts, and so on). Reich tax collections covered only 26 per cent of expenditures between 1939 and 1945.¹ From 1935 to 1945, the public debt rose from 15 billion to 400 billion Reichsmarks (not counting potential war-damage claims, perhaps equal in amount), while the money supply (currency plus bank deposits) rose from RM35 to more than RM200 billion.² At the same time, the productive capabilities of the economy had been substantially reduced by war damage to human and material resources, loss of territory, and general exhaustion. Furthermore, ordinary German consumers had been deprived of a normal flow of consumer goods for many years,³ and there were overriding urgent needs on the part of millions of people who had been bombed out or who were refugees or expellees from the East.

The disproportion between the supply of goods and the intensity of desires -- desires backed by enormous liquid funds -- dictated a new equilibrium level of money prices (in the absence of price controls) substantially higher than that prevailing under the Nazi regime. Alternatively, the current price level could have been maintained at an equilibrium by provisions for cancelling or sterilizing the bulk of the liquid funds in the hands of the public (as was

¹Newcomer, pp. 3-4.

²Howard P. Jones, "Currency, Banking, Domestic and Foreign Debt," in Edward H. Litchfield and Associates, Governing Postwar Germany (Ithaca, New York: Cornell University Press, 1953), p. 419.

³Though, it must be recalled, Germans were generally quite well-fed at least until 1945, in contrast with the wartime experience of the European populations under German domination.

finally done in the currency reform). Instead, an attempt was made to operate the economy as a "disequilibrium system." It should be mentioned, however, that the American authorities appreciated the urgent need for a currency reform quite early, and a plan to that effect was proposed in the Dodge-Colm-Goldsmith report in 1946.¹ However, the need for four-power agreement foiled all such plans until the Western powers finally went ahead without Russia in 1948.

The decision to maintain and enforce the National Socialist system of ceiling prices was made on a four-power basis shortly after the surrender, and in fact this decision reaffirmed earlier actions of the zone commanders. In the postwar situation, the controlled prices were hopelessly unrealistic; relative prices were drastically out of line with supplies and demands, but even these distortions were swamped by the disproportion between the general price level and the over-all amount of liquid funds. As a result, over most of the economy, production for legal sale could take place only at a financial loss. In addition, the prices initially established were very difficult to modify because all four occupying powers had to consent to any change.² A system of price ceilings may be workable in a situation where the public regards current shortages as a temporary phenomenon; the near prospect of a return to normalcy makes people willing to accumulate liquid hoards in the belief that they will be able to spend their money without too great

¹OMGUS (Office of Military Government, U.S.) Special Report: "A Plan for the Liquidation of War Finance and the Financial Rehabilitation of Germany" (May 20, 1946). See Clay, pp. 209-210. Aside from the scaling-down of currency, the report proposed a progressive capital levy for equitably redistributing wealth so as to equalize war burdens. Reich debt was to be repudiated. See Gottlieb, pp. 112-115.

²There were characteristic divergences between the different national policies. The Russians favored rigid price ceilings as a device to make private production unprofitable; they set up Soviet corporations in their zone, and exempted these from the price regulations. The Americans approached the problem with a dogged "hold-the-line" spirit. The British, appreciating the economic advantages of price increases but also concerned for the political effects of any relaxation, had a vacillating policy. See Mendershausen, "Prices, Money, and Goods," p. 648.

a price penalty, in the not-too-distant future. This was substantially the situation for the wartime repressed inflations of Germany, Britain, and the United States. And, in the victorious countries, public confidence (mistaken though it was) in the restoration of normal price levels persisted for some years afterward. But no one in postwar Germany could believe in the return of normalcy, so this vital stabilizing element was lacking. Furthermore, in most historical situations ceilings have been adjusted to keep the margin between legal and realistic prices within bounds, a necessary accommodation if the controls are to be workable at all. But in postwar Germany the ceilings were initially based upon a Hitler price freeze dating as far back as 1936¹ (liquid funds having risen more than 10-fold in the interim) and then were maintained with exceptional rigidity.²

It is very instructive to compare the Japanese and German postwar inflations. In Japan there were also price controls. But there, in the hope of stimulating industrial recovery, the financial authorities pursued an extreme cheap-money policy which continued to multiply money and credit. Fiscal and monetary policy in Occupied Germany was, in contrast, very conservative; balanced budgets were the order of the day,³ and the banking system was not in a position to create very much credit. In Japan there was a dynamic or "run-away" inflation, based upon ever-increasing expansion of money and credit, and a consequent flight from money on the part of the public. The Japanese price ceilings were flexible and adjusted fairly

¹Klein, p. 154.

²Prices were not absolutely rigid, though the movement was very small. A wartime cost-of-living index calculated at legal prices showed 1943 as 110 per cent of 1936 (ibid.), while a postwar index showed May 1948 as 131 per cent of 1938 (Mendershausen, "Prices, Money, and Goods," p. 649).

³Newcomer, p. 8; Jones, p. 424.

rapidly; even so, they fell behind the actual course of developments. As a result, a large fraction of transactions took place on the black market, which could not be rigidly suppressed. But in Germany the inflation was static. Current fiscal and monetary policy did not augment the inflationary pressure, which was entirely due to an initial overhang of excess liquidity. The price ceilings were rather tightly maintained, and the black market did not play a very major role, representing perhaps 10 per cent of transactions.¹ In Germany, however, the term "black market" was given a very narrow definition: outright trading of goods for cash at illegal prices, a practice professionally engaged in by a specialized class of disreputable individuals.² In contrast, everybody engaged in a form of transaction known as "bilateral exchange" or "compensation trade," apparently without moral taint. This trade took place at legal prices in money, except that no one could acquire goods or services for money alone, but, rather, only upon exchange of some "compensation" in real goods and services. The compensation system was apparently even more important on the wholesale and manufacturing levels than at retail; estimates are that from one-third to one-half of all transactions took this form.³ Even the Occupation authorities engaged in it, as the noon meal provided all German employees of the Occupation administration (at legal prices, of course) was often the chief attraction of such employment. In addition, "incentives in kind" were found necessary to increase production in certain vital fields, particularly coal mining.⁴

What was taking place in both Japan and Germany was the elimination of money as a medium of exchange. In Japan barter trading did

¹Mendershausen, "Prices, Money, and Goods," p. 652.

²Ibid., p. 653.

³Ibid., p. 655.

⁴Clay, p. 195.

not develop so far, because the more realistic price ceilings and the wider scope of the black market still left a useful role for money (though at the cost of a substantial hidden tax paid by individuals in the form of depreciation of money value during any period in which they held money without spending it). In Germany, barter trading in the form of "compensation trade" was dominant, the money aspect of the transaction being a pro forma demonstration to preserve legality and morality. Transactions by barter are, of course, extremely inefficient. They require a matching of the commodity needs of buyer and seller that is very difficult to achieve under complex production arrangements.

Since the German difficulty was due to the static overhang of excess purchasing power, rather than to continual creation of additional liquidity, it was amenable to a once-and-for-all cure. Once the currency reform scaled down the liquid funds, the enforcement of price controls could be abandoned,¹ and trade and then production leaped ahead. In Japan, by contrast, the early monetary reform of 1946 cured nothing, since the government continued the policy of inflationary deficits and lavish creation of credit. The cure here was monetary and fiscal conservatism, imposed in 1949 by the Dodge reforms.

Certain characteristic symptoms of a breakdown of the monetary trade mechanism were evident in Germany, as in others of the disaster cases reviewed here:

Trekking to the countryside to barter or forage for food was very prevalent. After the currency reform when trekking stopped,

¹Alternatively, the abandonment of price controls in the absence of currency reform would have led to a rapid shift to a higher price level, but not to a progressive inflation, given continued budgetary conservatism. It appears, from the rather hostile description in Gottlieb's book, that British financial advisers favored this solution. Gottlieb, pp. 107 ff.

short-haul railroad passenger traffic dropped immediately to less than 40 per cent of its prereform volume.¹

Quotas were imposed upon farmers for compulsory delivery of products at legal prices. (The policy of "impressment" under the Confederacy was somewhat similar, though less systematized.) In Germany, however, the sensible Japanese system of a price premium for over-quota deliveries was not adopted; authorities refused to countenance the weakening of the legal ceilings that such "market-splitting" would represent.

Subsidies to hold down end-product prices had been an important element in the cumulative build-up of inflationary pressures in Japan. Such subsidies had been fairly substantial under the Nazi regime, but were soon abandoned by the Occupation, probably because the balanced-budget policy left no funds available for that purpose. Subsidies, of course, would have been pointless in aiding consumers, as the money prices of commodities were already a negligible consideration. To make the subsidies significant in the calculations of producers would have required embarking upon the Japanese course of dynamic inflation.²

The currency reform, need for which had been appreciated long before (by the American authorities, at any rate), was postponed until June 1948 in the hopes of obtaining Soviet acquiescence. To go ahead without Soviet agreement meant adopting a separate money for West Germany, abandoning the common currency that represented one of the few remaining symbols of German unity. The stumbling block in the negotiations was the Soviet insistence upon control of a separate set of plates; the Russians rejected the proposal of a single set of plates under four-power control.³ The Americans were

¹Clay, p. 191.

²For a contrary contemporary view, see F. A. Burchardt and K. Martin, "Western Germany and Reconstruction," Bulletin of the Oxford Institute of Statistics, v. 9 (December 1947), pp. 405-416.

³Clay, pp. 208-209.

adamant against a separate Russian set of plates, after their painful experience with the military marks.¹ After urgent last-minute negotiations, the French agreed to accept the currency reform and to merge their zone at this time.

The currency reform represented radical surgery. It was based upon a 10:1 conversion of old Reichsmarks for new Deutsche marks. This was the scale used for revaluing private bonds, mortgages, annuities, and so on; public debt of the Reich was cancelled, except for the possibility of claims under future projected legislation for equalization of war burdens. The actual conversion rate for currency and demand and savings deposits was more severe -- 100:6-1/2 -- while the reform had a levelling feature in that substantial "initial allotments" on a per capita basis² were made even in the absence of Reichsmarks presented for conversion. Table 21 presents some summary data on the money supply as of April 1949 showing the effects of

¹When Allied fighting forces entered Germany, they were supplied with military marks for use in making local purchases; troops were permitted, also, to draw part of their pay in military marks for personal use. The Allied military mark circulated freely in the German economy at par with the Reichsmark. The western Allies were all supplied with marks from one accountable source, but upon Soviet demand, a duplicate set of plates with inks and paper was provided to the Russian authorities. The Soviets proceeded to print large quantities of marks and refused any accounting or settlement. Since Allied military marks were convertible into U.S. dollars by American personnel (the Soviets did not permit conversion into rubles), the marks came by various means into the hands of U.S. personnel. General Clay indicates (p. 63) that \$300,000,000 of such notes were converted; on this interpretation, the Soviets had in effect printed up this quantity of U.S. dollars for their own purposes. Gottlieb casts doubt on Clay's assertion, however. He argues that the actual amount converted is inconsistently reported in various documents and that there were other possible sources of "excess" marks, mainly unrecorded issues by western Allied military or occupation authorities (Gottlieb, pp. 117-121). Gottlieb considers the Russian source to have been at least a contributing factor, however, and in any case the Americans were unwilling to take a similar risk again.

²Initial allotments were made on a per capita basis to individuals, and on the basis of a variety of formulas to businesses and government units.

Table 21

VOLUME OF MONEY IN WEST GERMANY, APRIL 30, 1949
(millions of Deutsche marks)

1. <u>By source</u>		
a. Initial allotments		6,690
To individuals	2,780	
To businesses	470	
To German governments (including state-owned railroad and postal systems)	2,670	
To military governments	<u>770</u>	
b. Reichsmark conversion		5,910
c. Credit creation		<u>6,560</u>
Total		19,160
2. <u>By type</u>		
a. DMark notes in circulation		6,330
b. Bank deposits		<u>12,830</u>
Total		19,160

Source:

Walter W. Heller, "Tax and Monetary Reform in Occupied Germany,"
National Tax Journal, v. 2 (1949), p. 216.

the currency conversion. It will be noted that in the aggregate the "initial allotments" exceeded the balances resulting from Reichsmark conversion. The amounts shown with "credit creation" as source are all postreform, so that the reform created some 12.6 billion DMarks. The amount of the true prereform money supply is unknown; some 122.4 billion Reichsmarks were presented for conversion, but it is believed that there was considerable "slippage" as holders of large balances had to satisfy the authorities as to their source and legitimacy.

A number of other measures complementing the monetary reform were adopted concurrently or soon thereafter. Personal income and business taxes were reduced from their very high levels. A uniform link between the DMark and the dollar, initially set at \$.30, replaced the system of multiple exchange rates or conversion factors. All-comprehensive price, rationing, and allocation controls were withdrawn. Not all controls were immediately abolished; the Occupation authorities offered some resistance on this score. But enforcement was so relaxed that the black and legal markets gradually merged into a unified free market. The wage stop was also abolished soon after the reform.¹

The effects of the monetary reform and companion measures were attested to with remarkable unanimity, though there was some disagreement as to the more fundamental causes of the dramatic recovery of trade and production. General Clay declares, "The effect on the German economy was electric although it was given too much credit for the recovery which followed."² On the other hand, Wallich says: "Observers, left wing as well as right wing, agree that it transformed the German scene from one day to the next. On June 21, 1948, goods reappeared in the stores, money resumed its normal function,

¹For a general discussion of these points, see Mendershausen, "Prices, Money, and Goods," pp. 659-669.

²Clay, p. 214.

black and gray markets reverted to a minor role, foraging trips to the country ceased, labor productivity increased, and output took off on its great upward surge."¹ Heller, writing in September 1949, says of the reform: "It has unquestionably proved an economic success. It quickly re-established money as the preferred medium of exchange and monetary incentives as the prime mover of economic activity. Coupled with Marshall Plan imports, a good harvest, tax reform, and the removal of many direct controls, it touched off an expansion . . ."² Economists were generally able to perceive what seemed to be the main lesson: Germany had been "a country without a currency;"³ now, "It was as if money and markets had been invented afresh as reliable media of the division of labor."⁴

Disagreements still persist on a number of major economic features of the period, however. General Clay's contention seems to be that the prereform Occupation period did not represent economic stagnation, but rather a generally satisfactory picture of steady recovery under adverse conditions. The statistical indicators (see Table 19) support the view that in the prereform period some recovery did take place. But almost all observers agree that in view of the failure to return to anywhere near prewar levels the rate cannot be called satisfactory.⁵ Mendershausen (while describing with enthusiasm the consequences of the 1948 currency reform) suggests that had the reform and the associated decontrol measures been imposed

¹Wallich, p. 71. See also Jones, p. 425.

²Heller, p. 215.

³Stolper, p. 95.

⁴Mendershausen, "Prices, Money, and Goods," p. 646.

⁵Mendershausen reports that for other (presumably more or less comparable) countries (but excluding Japan) industrial production indexes were generally better than 75 per cent of prewar by 1947. "Prices, Money, and Goods," p. 647. Table 19 indicates that the German index was only 45 on a 1938 base for the first half of 1948 (prereform).

earlier the results would have been no more satisfactory than were the results of the repressed-inflation policy actually pursued, in view of "the protracted disorganization of government, social life, and foreign supplies."¹ However, the analysis here indicates that social and political disorganization was not too significant as an independent factor after the crisis of 1945, while the economic disorganization caused by the lack of an effective monetary mechanism persisted until the reform.

Gottlieb, who served as an economist on the staff of the American Military Government in this period, represents still another point of view. He argues that failure to adopt an early currency reform was a major error, but for a reason quite different from the one adduced here. Gottlieb does not regard the techniques of rationing, controls, and centralized assignment of resources -- the only available means of resource allocation under repressed inflation -- even as necessary evils. In his view they are, at least in principle, positively desirable tools, superior to the market mechanism as means of organizing production and achieving social objectives under conditions of impoverishment and dislocation like those in postwar Germany.² The unfortunate results achieved, actually employing just these tools in postwar Germany, he ascribes to policy mistakes and to general inefficiency on the part of German agencies and governments and Allied Occupation authorities.³ The failure to adopt a monetary reform earlier was such a policy mistake in his view since the swollen money supply undermined the wage and price

¹Ibid.

²Gottlieb, pp. 7-8.

³Gottlieb indicates that waste and misdirection were worst or at any rate most harmful precisely in those industries subject to the most thoroughgoing controls -- the coal-steel complex. Ibid., p. 78. This curiously parallels the experience under Russian war communism reported earlier.

controls and encouraged black markets.¹ There is, however, concurrence of opinion that, whatever the potential excellence of repressed-inflation controls may be for good, they can also be used to bad effect, and indeed were, in Germany.

¹ Rather inconsistently perhaps, Gottlieb argues at one point that reform was desirable in enlarging the role of markets and of decentralized decision making (pp. 98 ff.) -- a view more in consonance with that expressed here.

VII. CONCLUSION: COMMON THEMES IN DISASTER

This survey has been an exploratory investigation into the natural history of disaster, rather than a scientific testing of clearly formulated hypotheses about the causes, characteristics, or consequences of disasters. The primary results of the investigation are, therefore, clarification of concepts, gathering of evidence and materials for further study, and certain inferences of a more or less conjectural nature about the laws that govern disaster phenomena. These inferences may be divided between those that seem to be fairly reliable empirical generalizations of the evidence surveyed, and more speculative ideas that must remain at the level of surmise because of a scarcity of evidential base. In what follows, an attempt will be made to indicate the degree of reliability of the conclusions, or at least to label clearly those that must be considered mere surmise.

The term disaster has been used here to refer to a substantial, sharp reduction in material resources available to a community. Economic collapse, in contrast, refers not to mere impoverishment but to a failure in the mode of functioning of the economic system, in essence, a breakdown in the division of labor. The causes of the impoverishment or breakdown may be divided into exogenous versus endogenous with respect to the economic mechanism, though there is some difficulty in classifying in this way such causes as social revolutions.

Bombing is an exogenous source of stress. Conventional bombing in World War II was not heavy enough to bring about economic collapse by the generalized effects of sheer material destruction. However, in wartime Germany, attacks on transportation, oil, and power in combination with loss of territory from combat operations did lead to collapse. Apparently, essential connecting links in the economic system were broken, so that production fell even more than did the resources available. In the Confederacy, a similar

effect resulted from loss of territory in combination with blockade of an economy highly dependent upon external trade. It appears that blockade took first place and bombing second place in order of importance as causes of the collapse of the Japanese war economy in 1945. Other exogenous sources of stress, less important in modern than in earlier times, are famine from crop failure or other natural catastrophes (for example, the Irish potato blight), and disease (for example, the Black Death).

The endogenous causes of disaster or collapse are more subtle, inasmuch as no obvious destruction of resources may be visible. Those observed here were destruction of or threats to the institution of property, and disruption of the mechanism of monetary exchange. In the case of Russian war communism there was almost total destruction of property rights, involving an attempt to replace a system of production based upon voluntary exchange with a system of total bureaucratic administration of the economy. Recovery under the N.E.P. required reinstitution of markets and of a considerable degree of private ownership. (The modern Soviet system retains the essential element of voluntary exchange represented by free choice of occupation in return for monetary reward, that is, "private ownership" of one's own labor power.) The threat of communism, also, may be as potent a force as the actuality: Who will sow if he believes that he will not be permitted to reap? Such fears may have been a significant element in the lagging postwar recoveries.

Difficulties with the monetary mechanism observed here were all connected with inflation, or with the attempt to repress inflation or cope with its consequences through the device of price ceilings. In an unrepressed inflation, the inflationary tax on holding money (the rate of increase of prices) may become so great as to lead to the abandonment of the monetary medium. In a repressed inflation, the same effect may come about if exchange becomes impossible at legal ceiling prices, and if the safety valve of the black market

is rigorously suppressed. In either case, the consequence is resort to barter. The general substitution of barter for money exchange interferes so drastically with the division of labor as to be a fairly reliable indicator of a collapsed economy. It should be mentioned that monetary disorders at the opposite end of the spectrum -- of a deflationary rather than an inflationary nature -- are intimately connected with the "crises" and "panics" frequently encountered in financial history. Indeed, in terms of magnitude of effect (aside from direct human casualties), an event like the great depression of 1929-33 may rank with some of the greatest disasters of history.

Perhaps the most striking outcome of this survey is the remarkable similarity in the general sequence of events characterizing large-scale generalized disasters. The term "disaster syndrome" is already reserved for the typical social-psychological pattern of response to sharp localized disasters; we shall therefore use the term "generalized disaster phenomenon" to refer to this characteristic course of events.

The generalized disaster phenomenon seems to hinge on the food-money exchange relationship between countryside and city. The initiating event is, let us say, an exogenous stress such as blockade or bombing that leads to a substantial reduction in the material resources of the community. As a result, consumer commodities become scarce -- the more so if the government is subject to some continuing source of pressure such as external war or revolution. Especially in such a case, the government will be driven to finance its urgent needs through the printing press. Scarcity of goods and excessive quantities of money combine to raise prices, especially food prices in the cities. The impoverishment may be so great as to dictate a new long-run locational equilibrium entailing a movement of population back to the land from the cities, but the government resists this tendency; it may be vital to maintain war production, or perhaps the political base of the government may be in the cities.

At any rate, the next step of the government (if not already taken) is to introduce price ceilings and urban food rationing. The result is that farmers tend to stop bringing food to the cities at the low prices legally ruling, worsening the situation more than ever. Unofficial mechanisms of food distribution develop: black markets, barter, trekking. These all involve some loss of urban productive capacity, and are perhaps unacceptable to the government on other grounds. Consequently, the carrot and the stick are put to work on the farmers: compulsory quotas for food deliveries are imposed, and some type of subsidy is offered to overcome the negative effect of the low maximum prices. The subsidies, however, can only be financed by inflationary means, thus adding fuel to the inflationary fire roaring by this time. If the breakdown is severe enough, the government may use military force to collect food supplies from the farmers, a process yielding a temporary return at a severe cost in terms of production for the next harvests, not to mention adverse political effects. The generalized disaster phenomenon may culminate in a number of ways. First, economic collapse may occur. Alternatively, there may be a cessation of the external source of stress before economic collapse takes place (or afterward). With such a remission, recovery generally becomes possible; the policies associated with the disaster phenomenon may survive, however, to become a drag on the recovering economy. The economy may achieve a new equilibrium at a lower level of economic organization, or the monetary mechanism and markets may be restored to functioning by the abandonment of inflationary policies or of price ceilings. Foreign relief may provide a vital leeway in easing the transition to a viable economic system.

Each one of the particular historical experiences surveyed displays some variations from this archetypal pattern, of course. In Russian war communism the restoration of markets and the freeing of food prices under the N.E.P. led to a considerable recovery despite the continuance and intensification of inflationary financial policies on the part of the government. The Confederacy did

not formally institute price controls and rationing, though food was taken from the countryside by forced impressment at "fair" prices. Postwar Germany did not pursue inflationary fiscal and monetary policies; instead the difficulty was caused by the previous inflation of liquid assets under the National Socialist regime. Other departures from the general pattern may be cited, but the over-all uniformity of the generalized disaster phenomenon in such very different political and economic situations remains the dominating feature. It is entirely probable that the generalized disaster phenomenon is being reproduced in such economically catastrophic situations as China, and possibly Cuba, today. And the aftermath of a future war is likely to provide still more instances, at least if we consider possible wars with enough human and material survival to allow an advanced society.

It follows from this analysis that the urban-rural composition of the population should provide an indicator of the development of the disaster and recovery processes. Table 22 shows the data available for Germany and Japan. For Russia, systematic data are not available, but we have seen estimates that between 1917 and 1920 the aggregate population of towns fell by around one-third, and of the two great cities of Moscow and Petrograd by over one-half. The Confederacy may provide an exception, however. There the breakdown of law and order in the countryside seems to have led to a movement of refugees from the more remote rural areas into the cities. One possible explanation is that the local rural environs of the Southern towns largely sufficed to feed the urban population, since Southern agriculture was devoted mostly to nonfood crops where it was not on a merely subsistence basis.

It will be noted that the particular course represented by the generalized disaster phenomenon involves both technological and organizational elements. Bombing or blockade may be sufficient to bring on economic collapse, whatever the policies pursued, but the steps taken by the government in an attempt to cope with this stress

Table 22
URBAN FRACTION OF THE TOTAL POPULATION,
GERMANY AND JAPAN

West Germany		Japan	
Date	% Urban	Date	% Urban
May, 1939	70.5	Oct., 1940	37.9
Oct., 1946	68.6	Feb., 1944	41.1
Sept., 1950	71.1	Nov., 1945	27.8
		Apr., 1946	30.4
		Aug., 1948	34.6
		Oct., 1950	37.5
		Oct., 1955	56.3

Source:

United Nations, Demographic Yearbook (1960) (New York: 1961),
pp. 383 and 387.

are almost certain to bring on the second phase of the disaster -- a breakdown in the functioning of markets and of monetary exchange. To the extent that the distress is due to these secondary causes, it is eminently curable by a reversal of the policies responsible, as evidenced by the success of the N.E.P. in Russia, of the German currency reform, and of the Dodge fiscal reforms in Japan. Why did the reversal not occur earlier in these instances? In the Bolshevik case, of course, smashing the previous social order and economic system had important positive values to be weighed against whatever loss of production ensued. The Japanese inflation seems less explicable, though simple error certainly contributed. The financial gains to the beneficiaries of government credits almost certainly created an influential class with a vested interest in continued inflation. In Germany, the benefits of a currency reform were widely (but not universally) appreciated in advance; the delay was caused by fruitless diplomatic negotiations with the Soviets.

One of the major objectives of repressed-inflation policies, and the source of much of their political appeal, is epitomized by the slogan, "fair shares." Especially in a disaster situation, it may seem intolerable that anyone live much better than his fellows, even if the equality imposed is an equality of misery. Unfortunately, the pursuit of short-run equality will almost certainly be at the expense of economic productivity, and even possibly at the expense of long-run equality. But in a crisis situation where the average level of the population may not be far from the margin of starvation, it has proved politically difficult to break away from what could be claimed to be policies of "fair shares" or at least "equality of misery." Alternative policies involving restoration of the market mechanism do create possibilities of enrichment for the few (for example, by removal of price ceilings on scarce commodities) in the course of general economic improvement.

All this goes some distance toward explaining why repressed inflation policies were maintained for so long in Germany and Japan.

One other consideration that shou'd be brought out is the view of some government economic decision makers that the repressed-inflation system, possibly after some reforms and improvements, can be made to yield results that are fundamentally superior to those of the market system. Such views may explain the seemingly permanent attachment of several important Latin American countries to repressed-inflation policies in the face of accumulated adverse experience.

To sum up on this point, it may be regarded as a well-established generalization that, whatever the technological impact of an initial disaster upon the productive potentialities of an economy, there is likely to be a characteristic organizational response to the crisis in the form of adoption of monetary-fiscal policies of repressed inflation. At the extremity of the crisis, when the stress is at its utmost effectiveness, it would be hard to say if such a policy really worsens matters. However, in the initial response to the threat the effective use of the society's resources is likely to be impaired by a repressed-inflation policy; and, almost certainly, recovery after cessation of the external pressure will be impaired. (It must not be forgotten, however, that the damage inflicted by the source of stress will have a lasting component. Even ideal policies cannot produce instantaneous recovery, and perhaps not complete recovery at any time.)

Generalized disasters are a relatively infrequent historical event, so that there seems to be rather little learning from one instance to the next.¹ However, after World War II a number of countries were thrust simultaneously into rather similar circumstances, so that learning could more easily take place. The success

¹As an illustration of the difficulty of the learning process, consider the following. Burckhardt, writing in 1852, reports that in the disaster year 302 the annals record that "the Emperors at that time commanded that there should be cheapness." Their edict

of "orthodox" (anti-inflationary) fiscal and monetary policies in Belgium provided an early clue, while the Einaudi reforms of 1947 in Italy terminated the inflation in that country. Both of these instances almost certainly influenced German sentiment against continuance of the repressed-inflation policy, while the role of Mr. Dodge in both Germany and Japan indicates that there was some learning from the former to the latter situation.

We now turn from the relatively well-established generalizations to the more conjectural inferences from the experiences reviewed. Since they are clearly speculations, they must remain as bare hypotheses for future study.

The first such conjecture is that, by and large, population appears to have been tougher than property under physical blows like bombing or combat damage. This conclusion would obviously not apply to radiological or bacteriological warfare, however.

The second conjecture is that the speed and success of recovery in the observed historical instances have been due in large part to the proportionately smaller destruction of population than of material resources. That the proportionate survival of population may be the

declared: "Unprincipled greed appears wherever our armies, following the commands of the public weal, march, not only in villages and cities but also upon all highways, with the result that prices of foodstuffs mount not only fourfold and eightfold, but transcend all measure.... Our law shall fix a measure and a limit to this greed." Burckhardt goes on to comment: "The inevitable consequences ensued. Goods were hidden, despite the prohibition they grew dearer than ever, and countless sellers were made liable to the death penalty, until the law was rescinded." Jacob Burckhardt, The Age of Constantine the Great (Garden City: Doubleday, 1956), pp. 51-52. Despite the accumulation of at least 1600 years of historical knowledge of the behavior of economies under disaster conditions with inflated money supplies, Allied Military Government attempted to impose price controls upon the disrupted Italian economy during the course of World War II, with equivalent lack of success. See William D. Grampp, "The Italian Lira, 1938-45," Journal of Political Economy, v. 54 (August 1946), pp. 309-333. In the event of thermonuclear attack on the United States, the National Plan for Civil Defense and Defense Mobilization calls for institution of a universal price freeze to "stabilize" the postattack economy.

critical factor is suggested also by the fact that completely depopulated cities have often failed to regain their former size and prosperity,¹ in comparison with cities largely destroyed physically, but where substantial fractions of population survived (for example, Hiroshima). And again, this conjecture is reinforced by such historical instances as the economic decline of Ireland following the large emigration of population because of the potato blight.

While economists have written astonishingly little on the subject of disaster, this view linking the possibility of recovery to the degree of depopulation was expressed over a century ago by John Stuart Mill.² Mill presents a somewhat defective argument for this position, contending that the destruction of capital that takes place in disaster is very little more than the normal process of using-up of the capital stock that would require its replacement by the community in any case.³ Such an analysis treats capital wealth as if it were only a stock of consumables, a diminution of which is automatically corrected by the "involuntary privation" that necessarily results. What is omitted here is that capital contributes enormously to productivity, so that the production necessary to replace the capital stock is itself hampered and impaired by the

¹ Aside from St. Pierre in modern times, there are ancient examples such as Melos and Babylon. An interesting case is Carthage, which revived as a Roman city only after a century of desolation.

² "The possibility of a rapid repair of their disasters, mainly depends on whether the country has been depopulated. If its effective population have not been extirpated at the time, and are not starved afterwards; then, with the same skill and knowledge which they had before, with their land and its permanent improvements undestroyed, and the more durable buildings probably unimpaired, or only partially damaged, they have nearly all the requisites for their former amount of production." Principles of Political Economy (New York: J. A. Hill & Co., 1904), Book I, Ch. 5.

³ "There is nothing at all wonderful in the matter. What the enemy have destroyed, would have been destroyed in a little time by the inhabitants themselves: the wealth which they so rapidly reproduce, would have needed to be reproduced and would have been reproduced in any case, and probably in as short a time. Nothing is changed, except that during the reproduction they have not now the advantage of consuming what had been produced previously." Ibid.

scarcity of tools, machines, usable buildings, and inventories of all kinds. Even if capital wealth did consist entirely of a stock of consumables, it is clear that lack of food, for example, would in general have an adverse effect upon production. A sounder argument for the conjecture could be based upon the propositions that: (1) the fraction of the community's real wealth represented by visible material capital is small relative to the fraction represented by the accumulated knowledge and talents of the population, and (2) there are enormous reserves of energy and effort in the population not drawn upon in ordinary times, but which can be utilized under special circumstances such as those prevailing in the aftermath of disaster.

A third, somewhat related, conjecture is that economic recovery seems possible over an extremely wide range of damage. Certainly, there is no question that a rather prompt recovery was technologically possible in any of the instances here reviewed, granted a cessation of the external stress. Mill also remarks:

... what has so often excited wonder, the great rapidity with which countries recover from a state of devastation; the disappearance, in a short time, of all traces of the mischiefs done by earthquakes, floods, hurricanes, and the ravages of war. An enemy lays waste a country by fire and sword, and destroys or carries away nearly all the moveable wealth existing in it: all the inhabitants are ruined, and yet in a few years after, everything is much as it was before.¹

The A-Country, B-Country hypothesis of Herman Kahn (see Section IV, above) is also lent some conjectural support by our data. Generally speaking, it has proved relatively easy to rebuild great cities after destruction if the hinterland has remained largely intact. On the other hand, the cities cannot maintain themselves without the hinterland, since adverse developments in the countryside interfering with food supplies lead to rapid depopulation of the cities (Russia under war communism).

¹ Ibid.

As an additional generalization, it is worth noting that the catastrophes reviewed here seem not to have led directly to as much danger of popular revolt from the rule of the then-established authorities as might have been anticipated. The chief exception is farmer resistance to enforced crop collections, which led to armed conflict in Russia and even to some extent in the Confederacy. In the circumstances, these seem to have been put down with surprising ease by the authorities.

Finally, it may be mentioned that the subject of disaster and recovery could be regarded as a kind of special case of the general problem of economic development. There might, therefore, be reason to suspect that the causes of lagging recovery from acute disaster may often also be the causes responsible for chronically lagging normal growth in certain national economies, for example, in Latin America.

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